

Test Area North Operable Unit 1-07B Final Groundwater Remedial Action Health and Safety Plan

July 2005

**Idaho
Cleanup
Project**

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Test Area North Operable Unit 1-07B Final Groundwater Remedial Action Health and Safety Plan

July 2005

**Idaho Cleanup Project
Idaho Falls, Idaho 83415**

**Prepared for the
U.S. Department of Energy
Assistant Secretary for Environmental Management
Under DOE Idaho Operations Office
Contract DE-AC07-05ID14516**

ABSTRACT

This Health and Safety Plan establishes the procedures and requirements that will be used to eliminate or minimize health and safety risks to personnel working at the Operable Unit 1-07B site, as required by the Occupational Safety and Health Administration standard, “Hazardous Waste Operations and Emergency Response” (29 CFR 1910.120 and 29 CFR 1926.65). This Health and Safety Plan contains information about the hazards involved in performing the work as well as the specific actions and equipment that will be used to protect personnel while working at the task site.

This Health and Safety Plan is intended to give safety and health professionals the flexibility to establish and modify site safety and health procedures throughout the entire span of site operations based on the existing and anticipated hazards.

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ACRONYMS

ALARA	as low as reasonably achievable
ANSI	American National Standards Institute
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
CFA	Central Facilities Area
CFR	<i>Code of Federal Regulations</i>
COD	chemical oxygen demand
CPR	cardiopulmonary resuscitation
CRC	contamination reduction corridor
CRZ	contamination reduction zone
DAR	Document Action Request
dBA	decibel A-weighted
DCE	dichloroethene
DOE	U.S. Department of Energy
DOE-ID	U.S. Department of Energy Idaho Operations Office
EPA	U.S. Environmental Protection Agency
ER	environmental restoration
ES&H	environment, safety, and health
EZ	exclusion zone
FSP	field sampling plan
FTL	field team leader
HAD	hazard assessment document
HASP	health and safety plan
HAZMAT	hazardous material
HAZWOPER	hazardous waste operations and emergency response
HSR	health and safety representative

ICP	Idaho Cleanup Project
IH	industrial hygienist
INEEL	Idaho National Engineering and Environmental Laboratory
INEL	Idaho National Engineering Laboratory
INL	Idaho National Laboratory
ISB	in situ bioremediation
ISMS	Integrated Safety Management System
JSA	job safety analysis
MCP	management control procedure
MNA	monitored natural attenuation
NPTF	New Pump and Treat Facility
NRR	noise reduction rating
OMP	Occupational Medical Program
OS	operations supervisor
OSHA	Occupational Safety and Health Administration
OU	operable unit
PDD	program description document
PLN	plan
POD	plan of the day
PPE	personal protective equipment
PRD	program requirements document
RadCon	radiological control
RBA	radiological buffer area
RCRA	Resource Conservation and Recovery Act
RCT	radiological control technician
ROD	Record of Decision

RWP	radiological work permit
STD	standard
STR	subcontract technical representative
SZ	support zone
TAN	Test Area North
TCE	trichloroethene
TPR	technical procedure
TRAIN	Training Records and Information Network
TSF	Technical Support Facility
TWA	time-weighted average
UL	Underwriters Laboratory
USC	<i>United States Code</i>
VPP	Voluntary Protection Program
WGS	Waste Generator Services

Test Area North Operable Unit 1-07B Final Groundwater Remedial Action Health and Safety Plan

1. INTRODUCTION AND PURPOSE

This Health and Safety Plan (HASP) establishes the procedures and requirements that will be used to eliminate or minimize health and safety hazards to personnel working at the Test Area North (TAN) Operable Unit (OU) 1-07B final groundwater remedial action at the Idaho National Laboratory (INL), previously the Idaho National Engineering and Environmental Laboratory (INEEL), that is being completed by the Idaho Cleanup Project (ICP). The locations of the INL and TAN are shown in Figure 1. This HASP has been prepared to comply with the authorized safety basis detailed in the “Hazard Assessment Document for the Test Area North Final Groundwater Remediation Operable Unit 1-07B” (HAD-306).

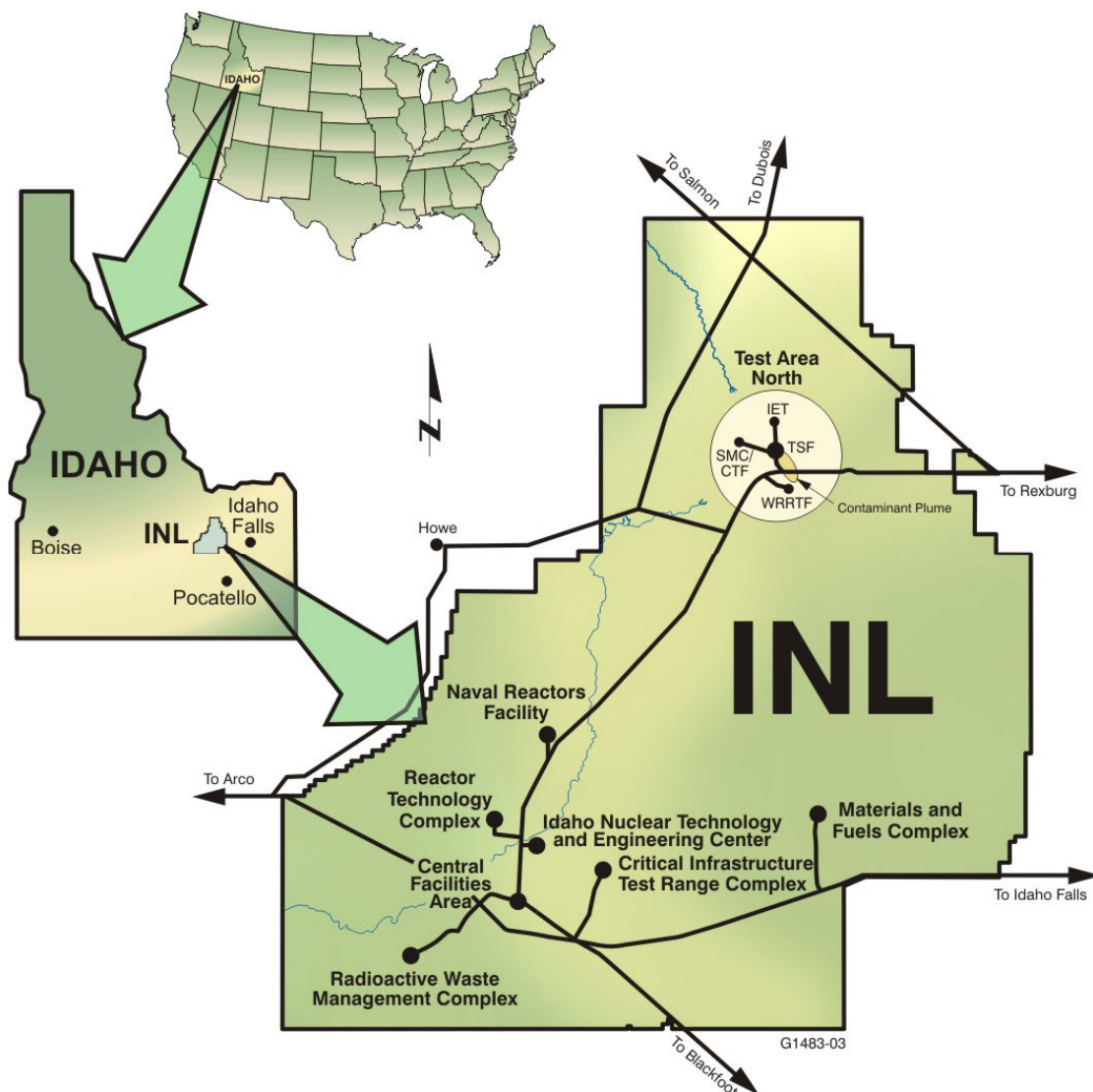


Figure 1. Location of the Idaho National Laboratory and major laboratory facilities.

This HASP governs all work performed for the OU 1-07B project, including:

- Management, operation, monitoring, and inspection of the New Pump and Treatment Facility (NPTF)
- Management, operation, and inspection of the In Situ Bioremediation (ISB) Injection Facility
- Management, operation, monitoring, and inspection of the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) waste storage areas and all other CERCLA storage areas associated with the TAN facility remedial action
- Management, operation, monitoring, and inspection of the air-stripper treatment unit
- ISB groundwater sampling and field activities
- ISB field laboratory management, analyses, and operations
- Medial zone groundwater sampling and field activities
- Monitored natural attenuation (MNA) sampling and field activities
- Well drilling, maintenance, and abandonment activities
- Facility modifications
- Installation and removal of equipment deployed in wells.

This HASP has been written to meet the requirements of the Occupational Safety and Health Administration (OSHA) standard, “Hazardous Waste Operations and Emergency Response” (29 CFR 1910.120 and 29 CFR 1926.65), and governs all work at the TAN OU 1-07B final groundwater remedial action that is performed by ICP management and operations contractor personnel, subcontractors, and any other personnel who enter the project area.

1.1 Regulatory Background

From about 1953 to 1972, activities conducted at TAN generated liquid waste that was disposed of by direct injection into the TSF-05 injection well located in the southwest corner of the Technical Support Facility (TSF). This well dispersed the waste into the Snake River Plain Aquifer, which underlies the INL. The waste consisted mainly of industrial and sanitary wastewater but also included organic, inorganic, and low-level radioactive wastewaters. Activities generating this waste included efforts to develop a nuclear-powered aircraft and tests simulating accidental loss of coolant from nuclear reactors. Contamination was discovered in 1989 and was first addressed in accordance with the *Consent Order and Compliance Agreement* (DOE-ID 1987). In 1991, the U.S. Environmental Protection Agency (EPA), U.S. Department of Energy Idaho Operations Office (DOE-ID), and the Idaho Department of Health and Welfare (presently named the Idaho Department of Environmental Quality)—collectively identified as the Agencies—entered into the *Federal Facility Agreement and Consent Order for the Idaho National Engineering Laboratory* (DOE-ID 1991). As a result, contaminated groundwater that emanates from TSF-05 was designated as OU 1-07B.

A remedial investigation/feasibility study was completed (INEL 1994), which led to the approval of the *Record of Decision Declaration for the Technical Support Facility Injection Well (TSF-05) and*

Surrounding Groundwater Contamination (TSF-23) and Miscellaneous No Action Sites Final Remedial Action, Operable Unit 1-07B (DOE-ID 1995). This Record of Decision (ROD) included a default remedy of pump-and-treat; however, it allowed for additional treatability studies to be performed to determine if a more cost-effective remedy could be identified. Site characterization in conjunction with the treatability studies made evident that the most cost-effective way to treat a contaminant plume as large and complex as the TAN plume was to divide it into three different zones with separate remedial components for each zone. The three zones and remedies—defined based on the extent of trichloroethene (TCE) concentrations—include the hot spot utilizing ISB, the medial zone utilizing pump-and-treat, and the distal zone utilizing MNA. The *Record of Decision Amendment Technical Support Facility Injection Well (TSF-05) and Surrounding Groundwater Contamination (TSF-23) and Miscellaneous No Action Sites, Final Remedial Action* (DOE-ID 2001) describes this three-component remedy system.

1.2 Description of Test Area North Operable Unit 1-07B

Operable Unit 1-07B is the final remedial action for Injection Well TSF-05 and the Surrounding Groundwater Contamination Plume TSF-23 (Figure 2). The injection well is located within TAN, one of nine major facilities at the INL (Figure 1). This well is 93 m (310 ft) deep and perforated from 55 to 74 m (180 to 244 ft) and 82 to 93 m (269 to 305 ft) below ground surface. Historical records provide little definitive information on the types and volumes of organic waste disposed of into the groundwater via TSF-05. It is estimated that as little as 1,325 L (350 gal) or as much as 132,489 L (35,000 gal) of TCE may have been disposed of using TSF-05 during its operational period. Table 1 is a list of contaminants of concern in the plume originating from TSF-05 that were established in the ROD (DOE-ID 1995).

1.3 Overall Remedial Action Summary

The final remedy for OU 1-07B combines ISB for hot spot restoration and MNA for distal zone restoration with pump-and-treat for the medial zone (DOE-ID 1995), thereby providing a comprehensive approach to the restoration of the contaminant plume. The following is a description of the remedy components for restoration of the OU 1-07B hot spot, medial zone, and distal zone of the contaminant plume (illustrated conceptually in Figure 3) and the institutional controls, monitoring, and contingencies for each remedy:

- **Hot Spot**—The selected remedial component for the hot spot is ISB, which promotes bacterial growth by supplying essential nutrients to indigenous bacteria that are able to break down contaminants within the aquifer. An amendment (i.e., sodium lactate or whey) is injected into the secondary source area through the TSF-05 injection well or through other injection wells in the immediate vicinity. Amendment injections stimulate the growth and activity of bacteria, thereby increasing the rate at which the volatile organic compounds break down into harmless compounds. The amendment supply is distributed as needed, and the treatment system operates year-round.
- **Medial Zone**—The selected remedial component for the medial zone is pump-and-treat. Pump-and-treat involves extraction of contaminated groundwater, treatment through air strippers, and injection of treated groundwater back into the aquifer. In accordance with the original remedy selected in the ROD (DOE-ID 1995), construction of the NPTF in the medial zone was completed in January 2001. Routine operations for the NPTF began on October 1, 2001. In February 2004, the Agencies approved a 24-month medial zone rebound test to evaluate the effect of NPTF operations on contaminant concentrations in the medial zone. The NPTF was shut down on March 1, 2005, in support of this test.

Table 1. Contaminants of concern in the vicinity of the TSF-05 injection well (established in the 1995 Record of Decision).

Contaminant	Maximum Concentrations ^a	Federal Drinking Water Standard
Volatile Organic Compounds		
TCE	12,000–32,000 ppb ^b	5 ppb ^c
Tetrachloroethene	110 ppb	5 ppb ^c
cis-1,2-DCE	3,200–7,500 ppb	70 ppb ^c
trans-1,2-DCE	1,300–3,900 ppb	100 ppb ^c
Radionuclides		
Tritium	14,900–15,300 pCi/L ^d	20,000 pCi/L
Strontium-90	530–1,880 pCi/L	8 pCi/L
Cesium-137	1,600–2,150 pCi/L	119 pCi/L ^e
Uranium-234	5.2–7.7 pCi/L ^d	27 pCi/L ^f

ppb = parts per billion

pCi/L = picocuries per liter

a. The concentration range is taken from measured groundwater concentrations at the TSF-05 injection well (INEEL 2000).

b. Higher TCE concentrations were detected during Phase A surge-and-stress pumping of the TSF-05 injection well.

c. ppb is a weight-to-weight ratio that is equivalent to micrograms per liter (µg/L) in water.

d. Maximum concentrations of tritium and U-234 are below federal drinking water standards, and baseline risk calculations indicate a cancer risk of 3×10^{-6} . While this risk is smaller than 1×10^{-4} , both tritium and U-234 are included as contaminants of concern as a comprehensive plume management strategy.

e. The maximum contaminant level for Cs-137 is derived from a limit of 4 mrem/yr cumulative dose equivalent to the public, assuming a lifetime intake of 2 L/day of water.

f. The federal drinking water standard for U-234 is for the U-234, U-235, and U-238 series.

DCE = dichloroethene

INEEL = Idaho National Engineering and Environmental Laboratory

TCE = trichloroethene

TSF = Technical Support Facility

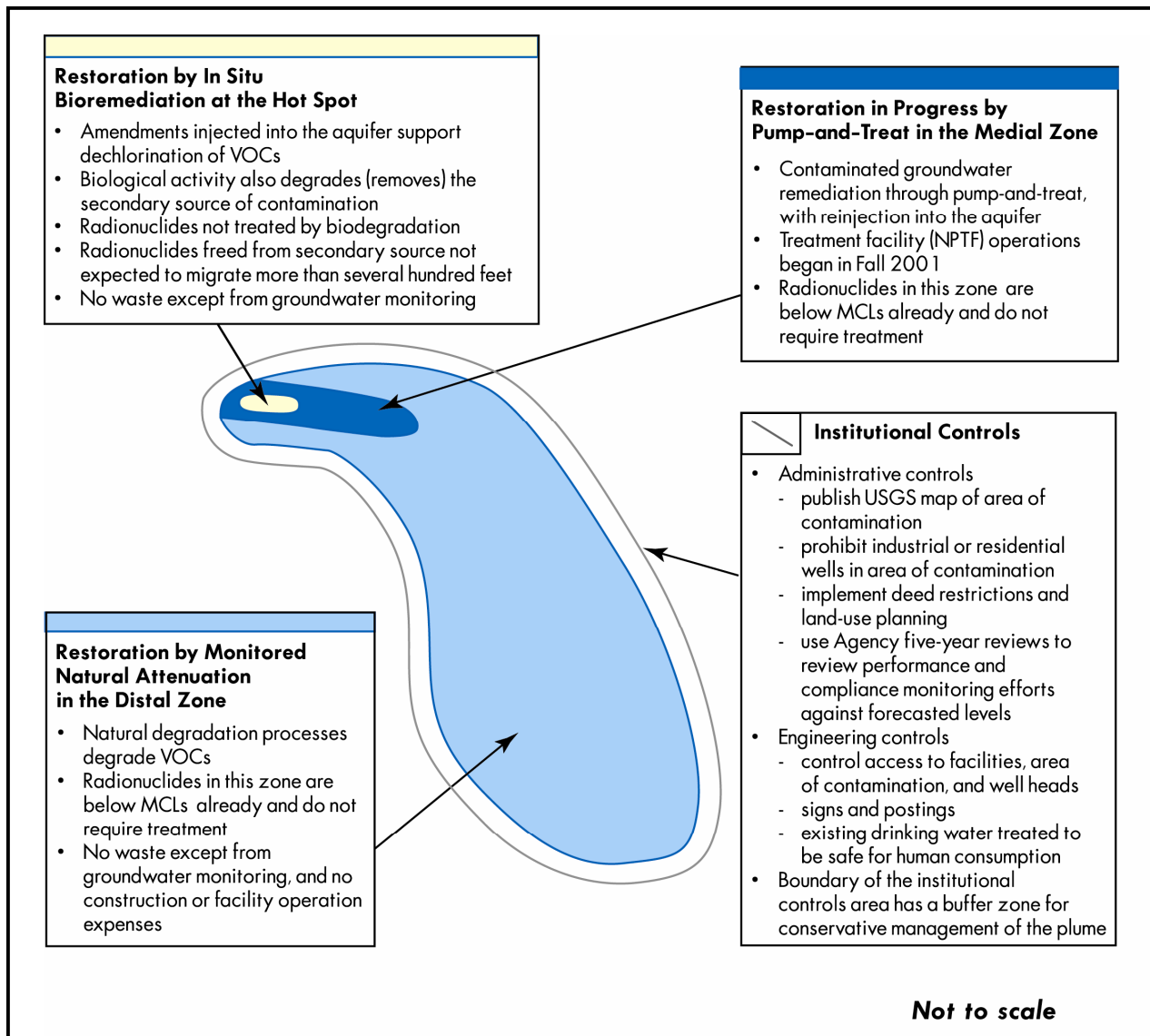


Figure 3. Conceptual illustration of Operable Unit 1-07B remedial action components.

- **Distal Zone**—The selected remedy component for the distal zone is MNA. Natural attenuation is the physical, chemical, and biological processes that act without human intervention to reduce the mass, toxicity, mobility, volume, or concentration of contaminants in groundwater. Monitored natural attenuation includes groundwater monitoring to compare actual measured degradation rates to predicted degradation rates.
- **Institutional Controls**—Engineering and administrative controls have been put in place to protect current and future users from health risks associated with groundwater contamination. Groundwater monitoring and numerical modeling will be used to track the plume boundary. The institutional control area will be modified, as required, to maintain a conservative buffer zone around the contaminant plume area.
- **Monitoring**—Groundwater monitoring is conducted throughout the plume with samples analyzed to determine the progress of the remedy.

- **Contingencies**—Contingencies identified under the remedy include:
 - For the medial zone, monitoring wells located upgradient of the NPTF will be monitored on a routine basis to ensure that concentrations of radionuclides in the groundwater remain low. If monitoring indicates that the concentration of radionuclides in the NPTF effluent would exceed maximum contaminant levels, then the air-stripper treatment unit—located between the hot spot and the NPTF but not currently operating—will be used to prevent those radionuclides from traveling downgradient to the NPTF.
 - For the distal zone, if the Agencies determine that MNA will not restore the distal zone of the plume within the restoration timeframe, pump-and-treat units will be designed, constructed, and operated in the distal zone to remediate the plume. Additionally, this contingency remedy will be invoked if the required monitoring necessary for MNA is not performed.

Under the final remedy for OU 1-07B, concentrations of radionuclide contaminants of concern in the hot spot and medial zone will meet the remedial action objectives of the ROD (DOE-ID 1995) within the stated timeframe through natural attenuation processes. The groundwater-monitoring program will include monitoring the attenuation of radionuclide contaminants of concern in the hot spot and the medial zone. Concentrations of the radionuclide contaminants of concern in the distal zone have never exceeded the remedial action objectives.

1.4 Scope of Work

The objective of the OU 1-07B remedial action is to contain and remove the hot spot secondary source and to remediate the downgradient contaminated groundwater. Restoration of the groundwater will be complete when the concentration of contaminants found in the groundwater is reduced to below maximum contaminant levels, the carcinogenic risk is reduced to below 1 in 10,000 risk-based levels, and the cumulative hazard index is less than 1 for noncarcinogens. Restoration of the contaminated groundwater is to be complete by 2095.

2. KEY SITE PERSONNEL

The organizational structure for this project reflects the resources and expertise required to perform the work while minimizing risks to worker health and safety, the environment, and the public. Key project positions, lines of responsibility, and communication within the OU 1-07B project structure are shown in Figure 4. This organization chart is not all-inclusive, but it shows the structure for key resources assigned to complete OU 1-07B project tasks. The “Project Execution Plan for the Balance of INEEL Cleanup Project” (PLN-694) details the roles and responsibilities for Environmental Restoration (ER) project personnel above the OU 1-07B project manager level. See Table 2 for OU 1-07B project personnel designations and their responsibilities.

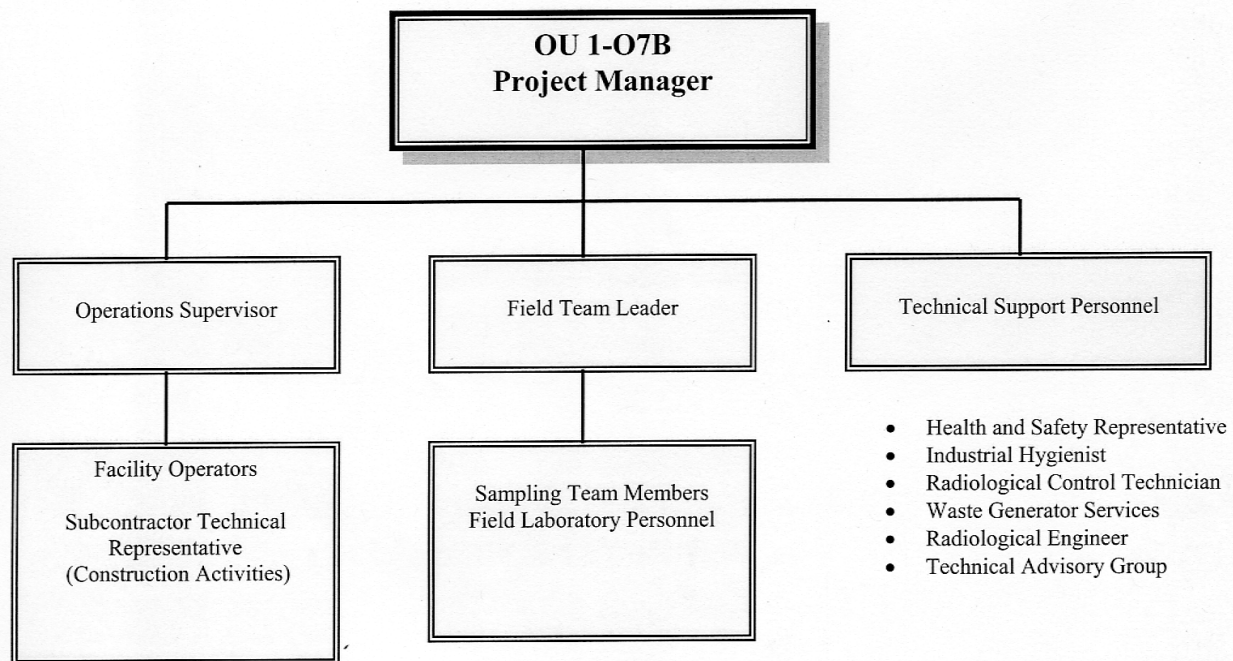


Figure 4. Organization chart for the Operable Unit 1-07B project.

Table 2. Operable Unit 1-07B personnel responsibilities.

OU 1-07B Personnel	OU 1-07B Personnel Responsibilities
OU 1-07B project manager	<p>The OU 1-07B project manager is responsible for developing and managing the TAN OU 1-07B project, including the following:</p> <ul style="list-style-type: none"> • Coordinating ER project operations • Ensuring that all operations, surveillance, and monitoring activities comply with ICP, OSHA, EPA, DOE, U.S. Department of Transportation, and State of Idaho regulations • Ensuring that tasks comply with PLN-694, "Project Execution Plan for the Balance of INEEL Cleanup Project"; this HASP; and the Quality Assurance Project Plan (DOE-ID 2004) • Managing the work scope, schedule, and budget for this project • Reporting to the Surveillance, Monitoring, and Long-Term Operations project manager • Developing and ensuring the technical review and acceptance of all project documentation • Ensuring compliance with Conduct of Operations' requirements and verifying the completion of applicable hazard checklists and JSAs as required by MCP-3562 or STD-101, as applicable • Developing site-specific plans required by the ER project (i.e., work plans, ES&H plans, and sampling and analysis plans)

Table 2. (continued).

OU 1-07B Personnel	OU 1-07B Personnel Responsibilities
	<ul style="list-style-type: none"> • Supporting CERCLA (42 USC § 9601 et seq.) and National Environmental Policy Act (42 USC § 4321 et seq.) public review and comment processes by identifying their requirements and scheduling their organization • Coordinating and interfacing with units within the program support organization on issues relating to quality assurance, ES&H, and National Environmental Policy Act (42 USC § 4321 et seq.) support for the project • Coordinating site-specific collection, technical review, and input of data to an approved database (such as the Environmental Data Warehouse) • Coordinating and interfacing with subcontractors to ensure that milestones are met, adequate management support is in place, technical scope is planned and executed appropriately, and project costs are kept within budget • Ensuring that employee job function evaluation forms (Form 340.02) are completed for all project employees, reviewed by the project IH for validation, and submitted to the OMP for determination of necessary medical evaluations.
OS	<p>The OS is responsible for the safe and successful completion of the following assigned project tasks:</p> <ul style="list-style-type: none"> • Managing field operations • Executing the work plan • Enforcing project control • Documenting the project's activities in project logbooks • Conducting prejob safety briefings, as appropriate • Ensuring that all field tasks receive appropriate health and safety review prior to beginning in accordance with STD-101 • Completing the hazards profile screening checklist in accordance with STD-101 • Ensuring that the necessary equipment and facilities to implement the provisions of the HASP are available • Reporting the project status to the OU 1-07B project manager • Assuming the role of HSR with the environment, safety, health, and quality assurance representative's approval, as appropriate. <p>If the OS is unavailable, an alternate will be appointed as acting OS. The acting OS must meet all OS training requirements outlined in Section 6 of this HASP. The identity of the acting OS will be conveyed to project personnel, recorded in the OS daily force report, and communicated to the facility representatives.</p>

Table 2. (continued).

OU 1-07B Personnel	OU 1-07B Personnel Responsibilities
Facility operators	<p>The facility operators are responsible for operating the OU 1-07B facilities in accordance with established procedures. Facility operators are responsible for the following:</p> <ul style="list-style-type: none"> • Attending and participating in prejob briefings • Participating in safety reviews, hazard profiles, and screening checklists in accordance with STD-101, as needed • Reporting status to the OS for OU 1-07B • Reporting health and safety issues to the OS for OU 1-07B • Ensuring that appropriate logbooks are filled out and signed.
STR	<p>The STR is responsible for serving as the single point of contact for all subcontractor communication at the site. Duties include the following:</p> <ul style="list-style-type: none"> • Reporting to the OS or FTL for all technical direction and interface issues • Reporting all health and safety issues to the OS or FTL • Stopping work if an unsafe condition exists • Providing hazard and mitigation information about the nature of their equipment or operations during POD meetings • Participating in job-site hazard walk-downs, as appropriate.
FTL	<p>The FTL is responsible for the safe and successful completion of the sampling project. All health and safety issues at the work site must be brought to the FTL's attention. The FTL's duties include the following:</p> <ul style="list-style-type: none"> • Managing field operations • Ensuring the safety of personnel conducting the activities associated with the FSP • Executing the FSP • Serving as the sampling team and field laboratory lead • Enforcing site control • Documenting worksite activities in project logbooks • Conducting daily safety briefings • Complying with technical and operational requirements of the sampling activities • Conducting field analyses and decontamination activities • Complying with equipment removal procedures • Packaging and shipping samples • Determining in conjunction with the OS, site IH, and RCT the level of PPE necessary for the tasks • Ensuring compliance with field documentation, sampling methods, and chain-of-custody requirements.

Table 2. (continued).

OU 1-07B Personnel	OU 1-07B Personnel Responsibilities
	<p>The FTL's responsibilities may be transferred to a designated representative who satisfies all FTL training requirements outlined in Section 6.</p>
<p>Sampling and field laboratory team</p>	<p>The sampling and field laboratory team consists of the FTL and support personnel and their duties include the following:</p> <ul style="list-style-type: none"> • Understanding and complying with the requirements of this HASP • Participating in prejob briefings, POD meetings, and safety meetings at the start of each shift • Collecting, preserving, analyzing, and shipping routine monitoring and compliance samples in accordance with the relevant FSPs and TPRs • Employing good housekeeping practices • Using best sampling and best laboratory practices, as applicable • Receiving support from the IH, RCT, and HSR, as applicable • Reporting all health and safety issues to the FTL • Supporting the OS and FTL in other field activities, as needed.
<p>WGS representative</p>	<p>The WGS representative's duties include the following:</p> <ul style="list-style-type: none"> • Inspecting OU 1-07B CERCLA waste storage areas • Maintaining inspection logs • Placing CERCLA waste into the storage area awaiting proper disposition and disposal • Providing assistance in preparing and shipping OU 1-07B waste for disposition and disposal.
<p>Technical advisory group</p>	<p>The purpose of the technical advisory group is to review the monitoring and operations data obtained in support of the OU 1-07B project and to recommend future operating and monitoring strategies. Specific scope includes, but is not limited to, the following:</p> <ul style="list-style-type: none"> • Evaluating progress of ISB • Recommending ISB injection strategies • Evaluating NPTF operating and monitoring data and making recommendations on operating strategies • Providing technical assistance during MNA sampling, including FLUTe sampling • Evaluating annual MNA sampling data and recommending strategies, modifications of computer models, and monitoring frequency/location, as needed.

Table 2. (continued).

OU 1-07B Personnel	OU 1-07B Personnel Responsibilities
HSR	<p>The HSR must be qualified (in accordance with the definition in 29 CFR 1910.120) to recognize and evaluate hazards. While the HSR may also be the IH, safety professional, or in some cases the OS or FTL (depending on the hazards and complexity of the activity involved), other task-site responsibilities of the HSR must not interfere with their primary role at the task site, which includes the following:</p> <ul style="list-style-type: none"> • Serving as the primary contact for all health and safety issues • Taking or directing actions to ensure that workers are protected • Advising the OS and FTL on all aspects of health and safety • Stopping work at the task site if any operation threatens worker or public health or safety • Verifying compliance to the HASP • Conducting inspections and self-assessments • Requiring and monitoring corrective actions • Monitoring decontamination procedures, as appropriate. <p>If it is necessary for the HSR to leave the site, an alternate individual will be appointed to act as HSR and that person's identity must be communicated to project personnel.</p>
IH	<p>The IH is responsible for monitoring OU 1-07B field activities for hazards on a periodic basis, as requested or as conditions change.</p>
RCT	<p>The assigned RCT is the primary source for information and guidance on task radiological hazards and the controls necessary to mitigate them. The RCT's duties include the following:</p> <ul style="list-style-type: none"> • Providing RCT coverage as directed in applicable RWPs • Surveying and clearing materials removed from the site (i.e., equipment and samples) • Providing guidance for radioactive decontamination of equipment and personnel • Accompanying affected personnel to the nearest INL medical facility for evaluation if significant radionuclide contamination occurs • Notifying the FTL and OS of any radiological occurrence that must be reported, as directed by PRD-183, "Radiological Control Manual."

Table 2. (continued).

OU 1-07B Personnel	OU 1-07B Personnel Responsibilities
Radiological engineer	<p>The radiological engineer is the primary source for information and guidance relative to evaluation and control of radioactive hazards at the project. The radiological engineer may have other duties, as specified in other sections of this HASP or in PRD-183. The radiological engineer is responsible for the following:</p> <ul style="list-style-type: none"> • Providing engineering design evaluation and control of radioactive hazards at the project • Providing engineering design criteria • Reviewing containment structures • Making recommendations to minimize health and safety risks to project personnel • Estimating radiation exposure and providing ALARA evaluations • Identifying the types of radiological monitoring equipment necessary for work • Advising the OS, FTL, and RCT of changes in monitoring or PPE • Advising personnel on project evacuation and reentry.
ALARA = as low as reasonably achievable CERCLA = Comprehensive Environmental Response, Compensation, and Liability Act CFR = <i>Code of Federal Regulations</i> DOE = U.S. Department of Energy DOE-ID = U.S. Department of Energy Idaho Operations Office EPA = U.S. Environmental Protection Agency ER = environmental restoration ES&H = environment, safety, and health FSP = field sampling plan FTL = field team leader HASP = health and safety plan HSR = health and safety representative ICP = Idaho Cleanup Project IH = industrial hygienist INEEL = Idaho National Engineering and Environmental Laboratory INL = Idaho National Laboratory ISB = in situ bioremediation	JSA = job safety analysis MCP = management control procedure MNA = monitored natural attenuation NPTF = New Pump and Treat Facility OMP = Occupational Medical Program OS = operations supervisor OSHA = Occupational Safety and Health Administration OU = operable unit POD = plan of the day PLN = plan PPE = personal protective equipment PRD = program requirements document RCT = radiological control technician RWP = radiological work permit STD = standard STR = subcontract technical representative TAN = Test Area North TPR = technical procedure USC = <i>United States Code</i> WGS = Waste Generator Services

3. HAZARD IDENTIFICATION AND MITIGATION

The overall objective of this section is to identify existing and anticipated hazards, based on the OU 1-07B final groundwater remedial action scope of work, and to provide controls to eliminate or mitigate these hazards.

3.1 Industrial, Chemical, and Radiological Hazard Mitigation

Personnel may be exposed to industrial, chemical, and radiological hazards while working at the OU 1-07B final groundwater remedial action site. Table 1 lists the chemical and radiological contaminants of concern that may be encountered while conducting project tasks. Table 3 is a summary of OU 1-07B project hazards and activities with associated mitigation strategies. Job safety analyses (JSAs) have been prepared for all routine ISB activities and the hazard mitigations have been identified in technical procedures (TPRs). Mitigation strategies for nonroutine work activities are found in job-specific JSAs and TPRs.

3.1.1 Routes of Exposure for Chemical and Radiological Hazards

Exposure pathways for uptake of contaminants, hazardous materials, and radionuclides include the following:

- **Inhalation**—In most cases, contaminant concentrations at OU 1-07B work sites are not adequate to pose an inhalation hazard. However, precautions may be required to avoid inhalation of contaminants during specific work activities. These precautions will be covered in appropriate work control documents (i.e., JSA and TPR).
- **Skin absorption**—Precautions and use of appropriate personal protective equipment (PPE) are required to avoid skin absorption of the contaminants present in the materials encountered by OU 1-07B workers.
- **Ingestion**—Personnel shall not eat, drink, chew gum or tobacco, smoke, apply cosmetics, or perform any other practice that increases the probability of hand-to-mouth transfer of materials in any nondesignated area at the OU 1-07B task site. Personnel shall wash hands and face after work is completed.
- **Injection**—Dissolved gas needles, broken sample bottles, or other contaminated media from the OU 1-07B project site could cause migration through new or existing wounds and result in localized irritation, contamination, uptake of soluble contaminants, and deposition of insoluble contaminants.

During all project tasks, chemical and radiological hazards will be eliminated, isolated, or mitigated to the extent possible. Where they cannot be eliminated or isolated, monitoring for chemical and radiological hazards will be conducted as described in Section 5 to detect and quantify exposures. In addition, administrative controls, training, work procedures, and protective equipment will be used to further reduce the likelihood of exposure to these hazards. See Table 3 for a summary of each primary hazard, associated activity, and hazard mitigation procedures. The JSAs and RWP may be used in conjunction with this HASP to further detail specialized PPE and dosimeter requirements.

Table 3. Summary of Operable Unit 1-07B hazards, activities, and hazard mitigation.

Potential Hazard ^a	Activity ^b	Hazard Mitigation ^c
Dust	<ul style="list-style-type: none"> • ISB Injection Facility operations 	Use care to avoid release of dust. Wear safety glasses with side shields during amendment injection. Ensure that the area is ventilated and that an eyewash station is available.
Forklift	<ul style="list-style-type: none"> • ISB Injection Facility operations 	Stay aware of work environment. Use a spotter as necessary. Only qualified equipment operators may operate equipment. Only required personnel may be in the work area.
Hoisting and rigging	<ul style="list-style-type: none"> • ISB Injection Facility operations 	Hard hats and safety glasses are required. Hoisting and rigging will be conducted in accordance with the DOE “Hoisting and Rigging” standard (DOE-STD-1090). Only qualified operators may conduct hoisting and rigging activities. Equipment must be inspected prior to use in accordance with TPR-6901, “In Situ Bioremediation Facility Preventative Maintenance.”
Biohazards (such as mice, snakes, and spiders)	<ul style="list-style-type: none"> • ISB Injection Facility operations • ISB field lab • ISB groundwater sampling • MNA groundwater sampling • NPTF operations 	Be aware of work environment. If potentially dangerous snakes, spiders, or rodent nests are found, warn other personnel and keep clear of the area. Notify the OS or IH immediately. Contact Industrial Hygiene for additional guidance, as necessary. Ensure adequate lighting when performing inspections to reveal biohazards. Do not attempt to clean up nesting or excrement material.
Contaminated groundwater	<ul style="list-style-type: none"> • ISB Injection Facility operations • ISB field lab • ISB groundwater sampling • MNA groundwater sampling • NPTF operations 	Wear nitrile gloves and safety glasses. Segregate all contaminated groundwater for proper processing.

Table 3. (continued).

Potential Hazard ^a	Activity ^b	Hazard Mitigation ^c
Electrical hazards, including power tools	<ul style="list-style-type: none"> • ISB Injection Facility operations • ISB field lab • ISB groundwater sampling • MNA groundwater sampling • NPTF operations 	Ensure that all equipment is in good working order, that extension cords are rated for capacity and for wet and dry surfaces, and check that they are UL or equivalent approved. Ground-fault circuit interrupters are required for all extension cords.
F001-listed waste	<ul style="list-style-type: none"> • ISB Injection Facility operations • ISB field lab • ISB groundwater sampling • MNA groundwater sampling • NPTF operations 	Wear nitrile gloves and safety glasses with side shields when handling F001-listed waste. All items that have come into contact with groundwater from the TAN OU 1-07B plume are considered F001-listed waste upon disposal. Segregate solid waste that has been in contact with the groundwater from cold waste and handle as F001-listed waste. All F001-listed solid waste will be stored in the OU 1-07B CERCLA storage facility awaiting appropriate disposal. Segregate F001-listed liquid waste from other liquid waste types for proper processing.
Lifting/back strain	<ul style="list-style-type: none"> • ISB Injection Facility operations • ISB field lab • ISB groundwater sampling • MNA groundwater sampling • NPTF operations 	Use caution and proper lifting techniques when lifting purge containers, sampling boards, sample coolers, and other sampling equipment. Personnel must not lift greater than 50 lb or one-third of their body weight, whichever is less. Two-person lifting techniques must be used for heavy and/or awkward loads. Mechanical lifting equipment should be used whenever possible. Limit cooler weight to 50 lb.

Table 3. (continued).

Potential Hazard ^a	Activity ^b	Hazard Mitigation ^c
Organic vapors	<ul style="list-style-type: none"> • ISB Injection Facility operations • ISB field lab • ISB groundwater sampling • MNA groundwater sampling • NPTF operations 	Be aware of work locations and sampling procedures. Ensure that fresh air is circulating in the work area. In the unlikely event that a problem is suspected, notify the OS or FTL to call an IH to investigate and perform an exposure assessment.
Repetitive motions	<ul style="list-style-type: none"> • ISB Injection Facility operations • ISB field lab • ISB groundwater sampling • MNA groundwater sampling • NPTF operations 	All field and laboratory workers are required to take TRN838, “Basic Industrial Ergonomics,” training. Take stretch breaks to avoid injury during repetitive squeezing of rinse bottles, during computer usage, and when performing repetitive sampling. Take frequent breaks and rotate work between workers when raising and lowering equipment in the wells.
Slips, trips, and falls	<ul style="list-style-type: none"> • ISB Injection Facility operations • ISB field lab • ISB groundwater sampling • MNA groundwater sampling • NPTF operations 	Wear sturdy leather boots above the ankle. Be aware of uneven walking surfaces, including tripping hazards (such as cords and tubing). Be aware of wet or slick walking areas especially during cold weather and amendment injection. Post areas for tripping or slick hazards, as necessary.

Table 3. (continued).

Potential Hazard ^a	Activity ^b	Hazard Mitigation ^c
Port-a-reels/ peristaltic pumps/drum pumps/screw feeder	<ul style="list-style-type: none"> • ISB Injection Facility operations • ISB groundwater sampling • MNA groundwater sampling • NPTF operations 	Wear leather gloves. Follow the manufacturer's instructions when using pumps and reels. Ensure that equipment guards are in place. Secure loose clothing and hair to prevent catching them in machinery when performing minor adjustments or servicing activities.
Chemicals, including acids	<ul style="list-style-type: none"> • ISB field lab • ISB groundwater sampling • MNA groundwater sampling 	All chemicals must be clearly labeled. Material safety data sheets are available in the ISB field laboratory. Wear nitrile gloves, safety glasses, and a lab coat or apron when the potential to contact chemicals exists. Perform all activities involving acids in the fume hood when possible. Ensure access to an eyewash station. Add acid to water. Use goggles if a splash hazard exists.
Handling hot items	<ul style="list-style-type: none"> • ISB field lab 	Use caution when placing vials in the COD digester. Use tongs when removing the COD vials from the digester. Use caution when removing alpha/beta planchets from the evaporator.
Radiological source	<ul style="list-style-type: none"> • ISB field lab 	Use ALARA principles when conducting alpha/beta count procedures. "Source User Training" (TRN78) is required before handling the source.
Spills	<ul style="list-style-type: none"> • ISB field lab • ISB groundwater sampling • MNA groundwater sampling • NPTF operations 	Clean up potable water and dispose of cleaning materials in cold waste. Notify the OS or FTL and then mitigate hazardous spills, if reasonable. Solid waste generated to clean up hazardous waste spills must be disposed of as F001-listed waste in accordance with WGS procedures and the <i>Waste Management Plan for Test Area North Final Groundwater Remediation Operable Unit 1-07B</i> (ICP 2005). In the unlikely event of a large spill, the OS or FTL will notify the ICP spill response team.

Table 3. (continued).

Potential Hazard ^a	Activity ^b	Hazard Mitigation ^c
Carbon monoxide poisoning	<ul style="list-style-type: none"> • ISB groundwater sampling • MNA groundwater sampling • NPTF operations 	Ensure that doors remain open when fossil-fuel-powered vehicles and equipment are operating inside a facility. Minimize equipment run times.
Generator fuel—fire	<ul style="list-style-type: none"> • ISB groundwater sampling • MNA groundwater sampling 	Use caution when handling gasoline. Ensure that the generator is shut down and cool at least 10 minutes before refueling. Perform fueling a minimum of 10 ft from the work area. Ensure contact between the container and the fuel tank to reduce the potential for static buildup.
Heat and cold stress	<ul style="list-style-type: none"> • ISB groundwater sampling • MNA groundwater sampling 	All field personnel must view the SMTT0005, “Heat Stress,” and SMTT0010, “Cold Stress,” training videos. The FTL or OS will determine stay times in accordance with MCP-2704, Appendixes B–F. Be aware that windy conditions increase the potential for cold stress. Use of the buddy system is required for fieldwork.
Moving field vehicles, trailers, and support equipment	<ul style="list-style-type: none"> • ISB groundwater sampling • MNA groundwater sampling 	Wear leather gloves and maintain a safe body position when hooking the trailer to the truck. Use caution when backing the trailer. Use a spotter as needed. Verify that the trailer lighting is operating. Ensure that the brakes are set when equipment is positioned. Use wheel chocks when parked on an incline. Ensure that more weight is loaded in front of the trailer axel and not behind the axel to obtain a balanced load.
Pinch points	<ul style="list-style-type: none"> • ISB groundwater sampling • MNA groundwater sampling 	Be aware of pinch points when accessing well lids, well houses, sampling equipment, and Port-A-Reels. Be aware of moving equipment parts and vehicles.
Radiological contamination	<ul style="list-style-type: none"> • ISB groundwater sampling • NPTF operations 	The RWP must be followed during ISB fieldwork. An RCT must survey samples and equipment removed from designated wells. The interior of the air strippers must be surveyed to see if an RWP is needed during NPTF air stripper cleanout.

Table 3. (continued).

Potential Hazard ^a	Activity ^b	Hazard Mitigation ^c
Ultraviolet light (sunlight) exposure	<ul style="list-style-type: none"> • ISB groundwater sampling • MNA groundwater sampling 	Use sunscreen with a protection factor of at least 15. Wear a hat. Use clothing that covers the skin—no shorts, sleeveless shirts, or tank tops.
Compressed gases	<ul style="list-style-type: none"> • MNA groundwater sampling 	For personnel moving or changing out compressed gas cylinders, TRN1041, “Compressed Gas Training,” and TRN288, “PPE Training,” are required. Cylinders are to be transported in an upright position with protective caps in place in accordance with PRD-2009, “Compressed Gases.”
Noise	<ul style="list-style-type: none"> • NPTF operations • ISB groundwater sampling • MNA groundwater sampling 	Wear earplugs if remaining at work within 5 ft of the generator. Follow posted hearing protection requirements in the NPTF.
Confined spaces	<ul style="list-style-type: none"> • NPTF operations • MNA groundwater sampling 	Requirements of MCP-2749, “Confined Spaces,” will be followed if entry is necessary to complete work activities in identified confined spaces at the OU 1-07B project site.
Ladders and falls	<ul style="list-style-type: none"> • NPTF operations • ISB Injection Facility operations 	Personnel using ladders are required to take the SMTT0006, “Portable Ladder Safety Training,” video course. Inspect the ladder before use. Maintain three points of contact when ascending, descending, or working off the ladder. The ladder rung being stood on must be 4 ft or less from the ground. A safety professional must be called to evaluate the need for fall protection if a higher working surface is needed.
Inadequate lighting	<ul style="list-style-type: none"> • NPTF operations • ISB Injection Facility operations 	Use portable flashlights or light stations with extension cords to provide adequate lighting if needed during inspections or maintenance.

Table 3. (continued).

Potential Hazard ^a	Activity ^b	Hazard Mitigation ^c
Pressurized water and air and mists from pressure washer spray	<ul style="list-style-type: none"> • NPTF operations • ISB Injection Facility operations 	During inspection and clean out of the NPTF air stripper's interior, the air stripper's feed pumps and blowers must be locked out and tagged out in accordance with PRD-5051 and MCP-3650 or MCP-3651. Follow the manufacturer's instructions during operation of the pressure washer. Be aware of the potential for wand kickback when water flow begins during operation of the pressure washer. Ensure that water from the pressure washer does not enter electrical junction boxes. The IH will determine the appropriate controls, PPE, and monitoring activities needed during activities involving use of the pressure washer.
<p>a. This is not an all-inclusive list of hazards. Job-specific hazards may be identified and mitigated using JSAs, TPRs, and specialized training.</p> <p>b. This is a list of routine OU 1-07B activities. They are covered with JSAs, an RWP, and with routine training detailed in PDD-125, "Operable Unit 1-07B Test Area North Groundwater Remediation Project Training Program." Nonroutine activities may require job-specific JSAs, RWPs, TPRs, and specialized training.</p> <p>c. Job-specific training and reading requirements for routine OU 1-07B tasks are listed in PDD-125.</p>		
<p>ALARA = as low as reasonably achievable</p> <p>CERCLA = Comprehensive Environmental Response, Compensation, and Liability Act</p> <p>COD = chemical oxygen demand</p> <p>DOE = U.S. Department of Energy</p> <p>FTL = field team leader</p> <p>ICP = Idaho Cleanup Project</p> <p>IH = industrial hygienist</p> <p>ISB = in situ bioremediation</p> <p>JSA = job safety analysis</p> <p>MCP = management control procedure</p> <p>MNA = monitored natural attenuation</p> <p>NPTF = New Pump and Treat Facility</p>		<p>OS = operations supervisor</p> <p>OU = operable unit</p> <p>PDD = program description document</p> <p>PPE = personal protective equipment</p> <p>PRD = program requirements document</p> <p>RCT = radiological control technician</p> <p>RWP = radiological work permit</p> <p>STD = standard</p> <p>TAN = Test Area North</p> <p>TPR = technical procedure</p> <p>UL = Underwriters Laboratory</p> <p>WGS = Waste Generator Services</p>

4. WORK PROCESSES

The OU 1-07B project utilizes plan-of-the-day (POD) briefings and feedback, stop work authority, the buddy system, and appropriate PPE to perform OU 1-07B fieldwork requirements. These requirements are in place to protect personnel, control hazards, and to organize work activities. These practices are an integral part of performing work at the OU 1-07B site.

4.1 Plan-of-the-Day Briefing, Feedback, and Lessons Learned

The field team leader (FTL) or designee will conduct a POD or equivalent meeting. During this meeting, daily tasks are to be outlined, hazards identified and mitigated, work zones established, PPE requirements discussed, and feedback from personnel solicited. At the completion of this meeting, new work control documents (such as safe work permits or radiological work permits [RWPs]) will be reviewed and signed.

NOTE: If a formal Management Control Procedure (MCP) -3003 prejob briefing is conducted during the work shift, a POD is not required.

Particular emphasis will be placed on lessons learned from the previous workday's activities and how tasks can be completed in the safest, most efficient manner. All personnel are encouraged to contribute ideas to enhance worker safety and mitigate potential exposures. This POD will be conducted as an informal meeting and the only required record will be to document the completion of the POD in the FTL, operations supervisor (OS), or subcontract technical representative (STR) logbook.

Safety and health training or safety meetings may be conducted during the course of the project to reinforce key safety topics. Project safety personnel or any field team member may conduct the training, which should be performed in conjunction with the POD. Credit for safety meetings can be received for such topic-specific training by completing Form 361.24, "Tailgate Attendance Roster," or Form 361.01, "Safety Meeting Attendance Report," and submitting it to the appropriate training coordinator for entry into the Training Records and Information Network (TRAIN).

4.2 Stop Work

All personnel at the task site are responsible for using safe-work practices, reporting unsafe working conditions or acts, and exercising good housekeeping skills. If a safety hazard is identified and it appears that it can be mitigated within the scope of established work control documents, inform the OS or FTL so the condition can be corrected. If there is an imminent threat to safety or health, initiate STOP WORK in accordance with Program Requirements Document (PRD) -1004 or MCP-553, "Stop Work Authority."

4.3 Buddy System

The two-person or buddy system will be used during project tasks. For intensive tasks—where heat/cold stress and other hazards may impede a person's ability to self-rescue—the buddy system shall be implemented by both individuals remaining in visual contact with one another in order to assess and monitor his or her buddy's mental and physical well-being during the course of the activity. The buddy must be able to:

- Provide assistance, if required

- Verify the integrity of the buddy's PPE
- Observe his or her buddy for signs and symptoms of heat stress, cold stress, or contaminant exposure
- Notify other personnel in the area if emergency assistance is needed.

During non-intensive tasks (such as monitoring operation of the NPTF, operating the ISB injection facility, and checking the valve on a well), the buddy system may be implemented via radio or telephone communication. If clarification is required, the buddy system will be administered by the FTL in conjunction with the health and safety representative (HSR).

4.4 Personal Protective Equipment

All routine OU 1-07B activities require Level D PPE: safety glasses with side shields and sturdy leather boots above the ankle with nitrile or leather gloves (as needed). Specific activities may require the addition of hard hats, steel toe shoes, and lab coats or aprons in accordance with Table 4. This list may be augmented by JSAs or RWPs. During the course of the project, potential exposures and hazards will be monitored, as discussed in Section 5, to evaluate changing conditions and to determine PPE level adequacy and modifications.

Table 4. Operable Unit 1-07B task-based personal protective equipment requirements and modifications.

Location	Level of PPE	Modifications and Comments
Nonintrusive Tasks—Site Preparation/Demobilization and Site Restoration Tasks		
NPTF activities	Level D	Coveralls or standard work clothes, safety glasses with side shields, safety footwear meeting ANSI F2412 requirements or sturdy leather boots above the ankle, leather or nitrile gloves in accordance with task requirements, and hard hats if working in the NPTF operations area
ISB Injection Facility activities	Modified Level D	Upgrading to modified Level D (protective clothing, Tyvek coveralls, or equivalent) may be required if contamination (radiological or nonradiological) is detected. Hard hats are required if operating a crane.
Intrusive Tasks—All Soil Sampling Tasks, Decontamination, and Drilling Tasks (if required)		
Well drilling	Level D	Coveralls or standard work clothes, safety glasses with side shields, safety footwear meeting ANSI F2412 requirements or sturdy leather boots above the ankle, leather or nitrile gloves in accordance with task requirements, hard hats if required, and lab coats or aprons, as appropriate
ISB groundwater sampling	Modified Level D	Upgrading to modified Level D (protective clothing, Tyvek coveralls, or equivalent) may be required if contamination (radiological or nonradiological) is detected.
ISB field laboratory	Level C	If airborne contaminants increase to concentrations above established action levels, Level C full-face, air-purifying respiratory protection (chemical/radiological) will be worn in conjunction with chemical protective clothing.
MNA groundwater sampling		

Table 4. (continued).

ANSI = American National Standards Institute
 ISB = in situ bioremediation
 MNA = monitored natural attenuation
 NPTF = New Pump and Treat Facility
 PPE = personal protective equipment

If radiological contamination is encountered at levels requiring the use of anticontamination clothing, a task-specific RWP will be developed and MCP-7, MCP-432, and PRD-2001 will be followed.

5. EXPOSURE MONITORING

Historical monitoring and sampling data in project files show that employees are not exposed to chemical or radiological hazards above permissible levels. Therefore, Industrial Hygiene monitoring is not required during routine activities. Should conditions change, Industrial Hygiene and Radiological Control (RadCon) personnel will monitor the conditions (as needed). The RCT and IH will be responsible for determining the best monitoring technique. See Table 5 for action levels and responses for potential safety, chemical, and radiological hazards.

Table 5. Action levels for the Operable Unit 1-07B task site.

Contaminant/Agent Monitored	Action Level	Response Taken if Action Levels Are Exceeded
Organic vapors (volatile organic compounds)	<5 ppm in workers' breathing zone	Continue working and perform periodic monitoring (minimum every 5 minutes).
	5–10 ppm sustained for 1 minute in workers' breathing zone	Continue working, continue monitoring or don a minimum of Level C respiratory protection, ^a and continue working.
	1–50 ppm in workers' breathing zone	<u>If episodic</u> —Leave area until vapor dissipates, monitor continuously or don minimum Level C respiratory protection, and continue working. <u>If sustained</u> —Don minimum Level C respiratory protection. ^a
	>50 ppm in workers' breathing zone	Evacuate area. <u>If episodic</u> —Don Level C respiratory protection ^a and continue periodic monitoring. <u>If sustained</u> —Consult the OS and FTL to determine the course of action.
Altered oxygen levels	≥23.5% or <19.5%	Stop work until concentrations are between 23.5 and 19.5%.
Hazardous noise levels	<85 dBA for 8-hr TWA, <84 dBA for 10-hr TWA	No action
	85–114 dBA	Hearing protection is required to attenuate to below 85 dBA for an 8-hr TWA or 84 dBA for a 10-hr TWA (based device NRR).
	(a) >115 dBA (b) >140 dBA	(a) Isolate the source; evaluate NRR for single device, double protection as needed. (b) Control entry and isolate source. Only approved double protection should be worn.
Radiation field	<5 mrem/hr	No action; no posting is required.
	5–100 mrem/hr at 30 cm	Post as "Radiation Area"—Required items: RW I or RW II

Table 5. (continued).

Contaminant/Agent Monitored	Action Level	Response Taken if Action Levels Are Exceeded
	(§ 835.603.b)	training, RWP, and personal dosimetry.
Radionuclide contamination	1–100 times PRD-183 Table 2-2 values (§ 835.603.d)	Post as “Contamination Area.” Required items: RW II training, personal dosimetry, RWP, don PPE, and bioassay submittal (as required).
	>100 times PRD-183 Table 2-2 values (§ 835.603.d)	Post as “High Contamination Area”—Required items: RW II training, personal dosimetry, RWP (with prejob briefing), don PPE, and bioassay submittal (as required).
Airborne radioactivity	Concentrations (µCi/cc) >30% of appropriate derived air-concentration value (§ 835.603.d)	Post as “Airborne Radioactivity Area”—Required items: RW II training, personal dosimetry, RWP (with prejob briefing), don PPE, and bioassay submittal (as required).

a. Level C respiratory protection will consist of a half- or full-face, air-purifying respirator equipped with a high-efficiency particulate air, chemical, or combination cartridge as prescribed by the project IH. See Section 4.4, “Personal Protective Equipment,” for additional Level C requirements.

dBA = decibel A-weighted
 FTL = field team leader
 IH = industrial hygienist
 NRR = noise reduction rating
 OS = operations supervisor

PPE = personal protective equipment
 PRD = program requirements document
 RWP = radiological work permit
 TWA = time-weighted average

5.1 Radiological Exposure Prevention—As Low As Reasonably Achievable

Radiation exposure of project personnel will be controlled such that radiation exposures are well below regulatory limits. There must be no radiation exposure without commensurate benefit. **Unplanned and preventable exposures are considered unacceptable.** All project tasks will be evaluated with the goal of eliminating or minimizing exposures. All project personnel have the responsibility for following as-low-as-reasonably-achievable (ALARA) principles and practices, and personnel working at the site must strive to keep both external and internal radiation doses ALARA.

5.2 External Dosimetry

When RWPs are required for project tasks, the Radiological Control and Information Management System will be used to track external radiation exposures to personnel. Individuals are responsible for logging into the Radiological Control and Information Management System when electronic dosimeters are used and for ensuring that all required personal information is provided to RadCon personnel.

6. PERSONNEL TRAINING

All OU 1-07B personnel will receive training, as specified in 29 CFR 1910.120 or 29 CFR 1926.65 and ICP companywide manuals. Table 6 summarizes training requirements for access to the OU 1-07B project site. Additional training requirements for specific activities performed by OU 1-07B personnel are covered in Program Description Document (PDD) -125, “Operable Unit 1-07B Test Area North Groundwater Remediation Project Training Program.”

Modifications to training requirements listed in Table 6 may be necessary based on changing field conditions. The project manager must approve such changes with concurrence from the FTL, OS, radiological control technician (RCT), and industrial hygienist (IH).

Table 6. Required Operable Unit 1-07B project-specific training.

Training	FTL, OS, STR, and Subcontractor Supervisor	Other Field Team Members (Including Operators and Samplers)	Support Personnel ^a Requiring Access Beyond the SZ	Visitors ^f
Site-Specific HASP Training ^c	Y	Y	Y	Y
40-hr HAZWOPER ^b	Y	Y	As needed ^a	
24-hr HAZWOPER ^c			Y ^d	
8-hr HAZWOPER Site Supervisor	Y			
RW II (except RCTs)	Y	Y	Y ^d	
Area Warden Training	OS			
Basic Industrial Ergonomics	Y	Y		
Compressed Gas Safety Training	OS and FTL	Y		
Confined Space Entrant/Attendant Training	Y	Y ^h		
CPR/Medic First Aid ^g	Y	Y		
Fire Extinguisher Training	OS and FTL			
HAZMAT Employee General Awareness	Y	Y		
Hearing Conservation Training	Y	Y		
Heat Stress and Cold Stress Training	Y	Y		
Ladder Safety Training	OS and FTL	Facility Operators and NPTF samplers		
Source User Training	FTL	Y ⁱ		

- Shaded fields indicate that specific training is not required.

NOTE: All training listed is available through the ICP training program.

a. Support personnel (occasional project workers) typically include RCTs, equipment operators, and laborers; mechanics who must enter the EZ or RBA are required to have the training necessary to perform their assigned tasks within the EZ or RBA. This may include the same training as the OS or FTL (depending upon the task location) and directions from the project manager, IH, and RCT.

b. The 40-hr HAZWOPER required training will require an additional 24 hours of HAZWOPER supervised field experience, as required by 29 CFR 1910.120(e). The field experience for this project will be documented on Form 361.47 (or equivalent).

c. The 24-hr HAZWOPER training will require an additional 8 hours of HAZWOPER supervised field experience, as required by 29 CFR 1910.120. Field experience will be documented on Form 361.47 (or equivalent).

d. This training is required only if support personnel are to enter an EZ or CRZ (OS approval also is required).

e. This includes project-specific hazardous communications, site-access/security, and decontamination and emergency response actions, as required by 29 CFR 1910.120(e). Prejob and postjob reviews (MCP-3003) and stop work are performed in accordance with MCP-553 and PRD-1004.

f. Visitors must notify the current onsite supervisor (e.g., FTL and/or OS) and be escorted at all times by a trained field team member.

g. Two CPR trained personnel are needed onsite at all times during sampling and field activities.

h. This training is required based on project duties and project-zone access requirements. If entering areas requiring respirator use, training to a specific type of respiratory protection is required (i.e., full-face, negative air-purifying respirator; PAPR; airline with escape capability or self-contained breathing apparatus).

i. This training is required by field laboratory personnel only when conducting alpha/beta analysis.

Table 6. (continued).

Training	FTL, OS, STR, and Subcontractor Supervisor	Other Field Team Members (Including Operators and Samplers)	Support Personnel ^a Requiring Access Beyond the SZ	Visitors ^f
CERCLA = Comprehensive Environmental Response, Compensation, and Liability Act CFR = <i>Code of Federal Regulations</i> CPR = cardiopulmonary resuscitation CRZ = contamination reduction zone ER = environmental restoration EZ = exclusion zone FTL = field team leader HASP = health and safety plan HAZMAT = hazardous material HAZWOPER = hazardous waste operations and emergency response ICP = Idaho Cleanup Project		IH = industrial hygienist MCP = management control procedure NPTF = New Pump and Treat Facility OS = operations supervisor PRD = program requirements document RBA = radiological buffer area RCT = radiological control technician STR = subcontract technical representative SZ = support zone TRAIN = Training Records and Information Network USC = <i>United States Code</i>		
NOTE 1: Supervised field experience is only required if personnel have not previously completed this training at another CERCLA (42 USC § 9601 et seq.) site (documented) or they are upgrading from 24- to 40-hour HAZWOPER training. A copy of the training record must be kept at the project site as evidence of training or it must be available on TRAIN.				
NOTE 2: Completed training project forms (Form 361.47 or equivalent) should be submitted to the ER training coordinator for inclusion in the TRAIN System within 5 working days of completion.				

6.1 General Training

All project personnel are responsible for meeting training requirements, including applicable refresher training. Training records will be maintained on the ICP TRAIN System. Non-field-team personnel and visitors must provide evidence of meeting training requirements for the area of the site they wish to access. At a minimum, all personnel who access project locations must receive a site-specific HASP briefing and are required to wear appropriate PPE.

6.2 Project-Specific Training

Before beginning work at the project site, field team members will receive project-specific HASP training that will be conducted by the OS, FTL, or designee. This training will consist of a complete review of the following with time for discussions and questions.

1. A controlled copy of the project HASP, attachments, and Document Action Request (DAR) (Form 412.11)
2. Applicable JSAs and safe work permits
3. Work orders
4. Other applicable work control and work authorization documents
5. Project-specific training in conjunction with, or separately from, the formal prejob briefing (MCP-3003).

At the time of project-specific HASP training, personnel training records will be checked and verified to be current and complete for all the training requirements shown in Table 6. After the OS, FTL, or designee has completed the site-specific training, personnel will sign Form 361.25, "Group Read and Sign Training Roster," or equivalent, indicating that they have received this training; understand the project tasks, associated hazards, and mitigations; and agree to follow all HASP and other applicable

work control and safety requirements. Form 361.25 or equivalent training forms are available on the ICP Intranet under “Forms.”

A trained hazardous waste operations and emergency response (HAZWOPER) 8-hour supervisor (FTL, OS, or other trained designee) will monitor the performance of each newly 24-hour or 40-hour trained worker to meet the 1 or 3 days of supervised field experience, respectively, in accordance with 29 CFR 1910.120(e). Following the supervised field experience period, the supervisor will complete Form 361.47, “Hazardous Waste Operations (HazWoper) Supervised Field Experience Verification,” or equivalent, to document completion of the supervised field experience.

7. VOLUNTARY PROTECTION PROGRAM AND INTEGRATED SAFETY MANAGEMENT SYSTEM

The ICP safety process embraces Voluntary Protection Program (VPP) and Integrated Safety Management System (ISMS) criteria, principles, and concepts to identify and mitigate hazards and prevent accidents. All management and workers are responsible for implementing safety policies and programs and for maintaining a safe and healthful work environment. Project personnel are expected to take a proactive role in preventing accidents, ensuring safe working conditions for themselves and fellow personnel, and complying with all work control documents, procedures, and permits.

The **ISMS** focuses on the **system** side of conducting operations and **VPP** concentrates on the **people** aspect of conducting work. Both programs define work scope, identify and analyze hazards, and mitigate the hazards. Additional information on these programs is available on the ICP Intranet. For the safety of their employees, CH2M-WG Idaho, LLC, and its subcontractors participate in VPP and ISMS. This document includes all elements of both systems. The five key elements of VPP and ISMS and their corresponding HASP sections are shown in Table 7.

Table 7. Key elements of Voluntary Protection Program, the Integrated Safety Management System, and this Health and Safety Plan.

Voluntary Protection Program	Integrated Safety Management System	Health and Safety Plan Section
—	Define work scope	Section 1
Work site analysis	Analyze hazards	Sections 3, 5, and 8
Hazard prevention and control	Develop and implement controls	Sections 3, 4, 5, 7, 10, and 11
Safety and health training	Perform within work controls	Section 6
Employee involvement	Perform work within controls	Sections 2, 3, and 4
Management leadership	Provide feedback and improvement	Section 6 and 9

8. SITE CONTROL AND SECURITY

Site control and security will be maintained at the project site during all activities to prevent unauthorized personnel from entering the work area. Entry into and exit out of these areas will be controlled through the appropriate use of barriers, signs, and other measures in accordance with PRD-5117, “Accident Prevention Signs, Tags, Barriers, and Color Codes,” and PRD-3001, “Radiological Control Requirements for INEEL Construction Subcontractors.”

The OS and HSR shall be consulted regarding equipment layout at the project site in conjunction with the subcontractor superintendent for subcontractor-owned equipment. The focus shall be on equipment with stored energy (electrical or pressurized systems, elevated materials/equipment), chemicals, moving and rotating parts, and other equipment with the potential to strike, catch or entangle, resulting in personnel injuries. The layout of equipment at the project site shall reflect the nature of the hazard and shall be mitigated through the use of engineering controls (barriers, guards, and isolation), administrative controls (roped-off, restricted areas or controlled entry access), and qualifications of operators and those assisting in equipment operation.

Good housekeeping will be maintained at all times during the course of the project. Walking and working surfaces shall be set up to minimize tripping hazards. Equipment and materials shall be stored in a centralized location when not in use. Debris and refuse shall not be allowed to accumulate.

A graded approach with three types of work areas will be used for project tasks based on the potential hazards, complexity of work tasks, and duration. The three work areas are:

- Exclusion zone (EZ)
- Contamination reduction zone (CRZ), including a contamination reduction corridor (CRC). The CRC may not be posted, but it is the primary pathway from the CRZ to the EZ.
- Support zone (SZ).

The primary differences between the three areas will be the size of the area, method of delineation, and postings, as determined by the activity being conducted and the associated hazards. The OS in conjunction with the FTL and RadCon personnel (where radiological concerns exist) will determine what type of work area will be established.

Both radiological and nonradiological hazards will be evaluated when establishing the initial work zone size, configuration, and location. Common barriers may be used to delineate both radiological and nonradiological work-zone postings, depending on the nature and extent of contamination. Such barriers will be delineated and posted in accordance with both sets of requirements (29 CFR 1910.120 and 10 CFR 835), using appropriately colored rope and postings.

Personnel not directly involved with project activities will be excluded from entering these work areas. Visitors may be admitted into work areas provided they (1) are on official business, (2) have received site-specific training or orientation by the FTL or designee, and (3) have met all the site-specific training requirements for the area they have a demonstrated need to access (including PPE training), as listed on Table 6.

NOTE: Visitors may not be allowed into controlled work areas during certain tasks to minimize risks to workers and visitors. The OS or FTL will determine any visitor's need for access into the controlled work area.

8.1 Exclusion Zone

The EZ will be large enough to encompass the primary task area (i.e., the NPTF process area, ISB field laboratory, and sampling trailer while sampling is being conducted) and to allow equipment and personnel to move about freely and conduct necessary tasks. The minimum number of personnel required to perform project tasks safely will be allowed into the EZ. If the EZ is relocated to another site or reconfigured, it will be delineated in a configuration large enough to prevent non-field-team personnel in

the SZ from being exposed to potential safety and health hazards. The EZ's shape and size will be based on the tasks being conducted, existing structures and facilities, and potential for impact to adjacent areas from project tasks or contaminants.

The EZ is a controlled access zone at all times. An entry and exit point will be established at the periphery of the EZ and CRC to regulate the flow of personnel and equipment. The EZ's boundary will be delineated with rope or printed hazard ribbon or posted with signs in accordance with PRD-5117, "Accident Prevention Signs, Tags, Barriers, and Color Codes," or PRD-2022, "Safety Signs, Color Codes, and Barriers."

Factors that will be considered when establishing the EZ boundary include (1) tasks being conducted, (2) air monitoring data, (3) radiological contamination data, (4) radiation fields, (5) equipment in use, (6) the physical area necessary to conduct site operations, and (7) the potential for contaminants to be blown from the area. The boundary may be expanded or contracted as these factors change or additional monitoring information becomes available. All personnel who enter the EZ will wear the appropriate level of PPE for the hazards present and have required training as listed in Sections 5 and 6 of this HASP.

8.2 Contamination Reduction Zone and Corridor

The CRZ and CRC are transition areas surrounding the EZ and are located between the EZ and SZ (Figure 5). The CRC may not be formally delineated, but it will be designated by the travel path from the established CRZ-controlled entry and exit point and the EZ entry and exit point. The CRZ and CRC will serve to buffer the SZ from the potentially contaminated EZ areas. The CRZ and CRC may serve as staging areas for equipment and temporary rest areas for personnel.

The SZ will be considered a "clean" area. The location of the SZ will be in a prevailing upwind direction from the EZ, where possible, and readily accessible from the nearest road. The SZ is a designated area or building outside the CRZ and does not have to be delineated. Support trailers, vehicle parking, additional emergency equipment, extra PPE, and stored monitoring and sampling equipment may be located in the SZ. Visitors who do not have appropriate training to enter other project areas will be restricted to this zone.

8.3 Radiological Control and Release of Materials

Potential radiological-contaminated items or equipment will not be released until required radiological surveys have been completed (i.e., hand-held instruments and swipes) in accordance with MCP-139, "Radiological Surveys"; MCP-425, "Radiological Release Surveys and the Control and Movement of Contaminated Materials"; as stated in the RWP; and as directed by RadCon personnel.

8.4 Site Security

As described in the previous sections, all project site areas will be secured and controlled during normal work hours. During nonworking hours, the general project sites located inside INL facilities are controlled by the facility fence and normal security access requirements. Rope boundaries will be installed and posted if additional project site security and control will be required to prevent unauthorized personnel from entering the project area and being exposed to potential safety or health hazards (such as open trenches, exposed contaminated soils, or equipment left onsite). Signs will be left in place during off-hours and weekends to prevent personnel from inadvertently entering the area.

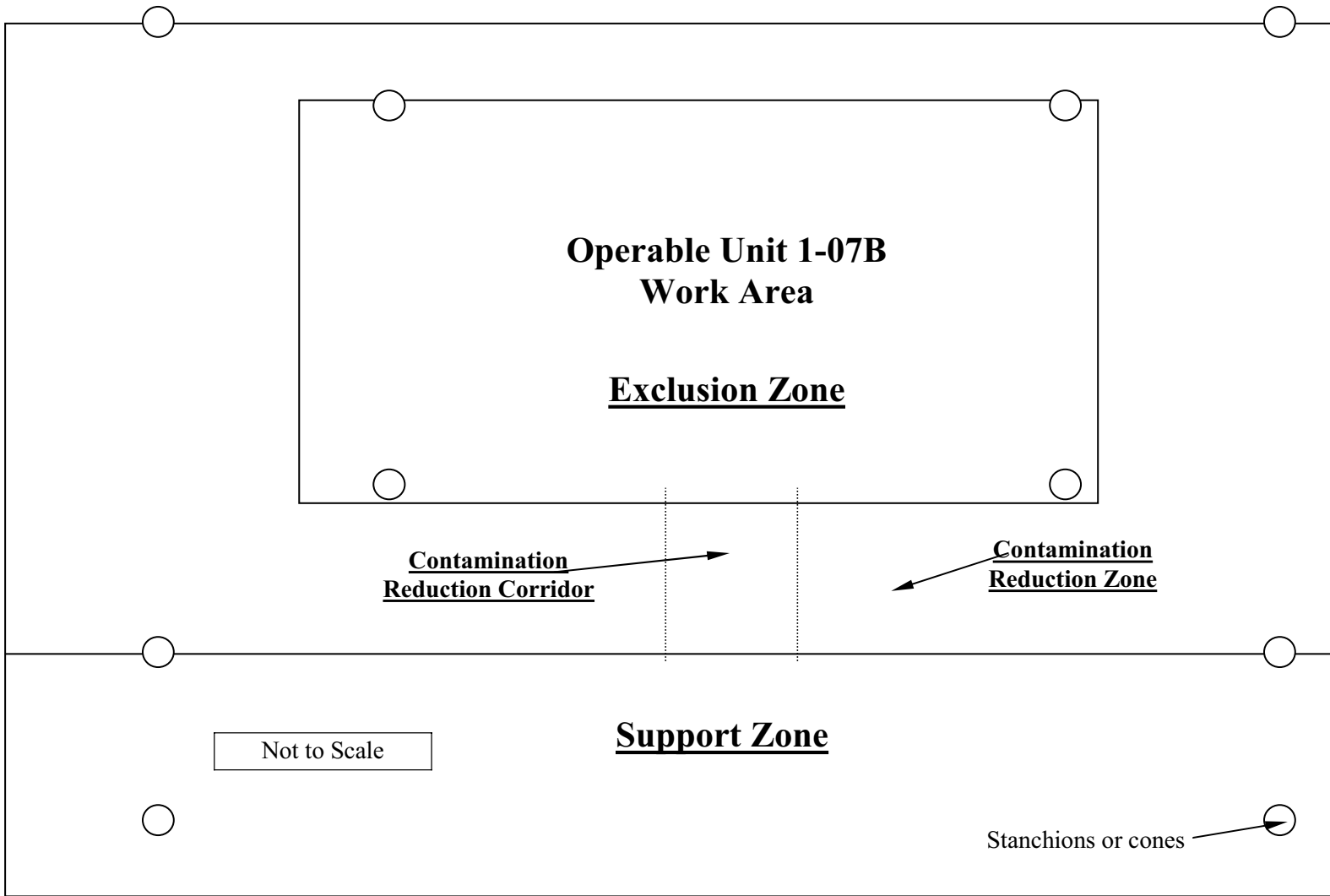


Figure 5. Established controlled work zones for the Operable Unit 1-07B site (exclusion zone, contamination reduction zone, and support zone).

The OS has the primary responsibility for ensuring that the project area is secured. The OS and RadCon (if required) will ensure that all health, safety, and radiological postings of the area are intact when leaving the site and will be responsible for maintaining them for the duration of the project. Project personnel are trained about site access and control requirements during project-specific HASP training and will not cross roped-off areas without the proper training and authorization, regardless of whether a sign is in place or not.

NOTE: Signs will be replaced as soon as possible if they are destroyed as a result of high winds.

8.5 Wash Facilities and Designated Eating Areas

Workers shall wash hands, face, and other exposed skin thoroughly after completing work and before smoking, eating, drinking, and chewing gum or tobacco to prevent accidental ingestion of hazardous substances. TAN-1614 is equipped with washing facilities and the office area will serve as the designated eating area for project personnel.

8.6 Designated Smoking Area

Smoking will be permitted only in designated project or facility smoking areas and personnel will comply with all INL smoking policies, including disposing of smoking materials in the proper receptacle. Smoking will not be permitted without establishing a designated smoking area. The project HSR in consultation with the designated fire protection engineer will be the single point of contact for establishing any smoking area and such areas may not be accessed at certain times of the year because of high or extreme fire danger.

9. EMERGENCY RESPONSE PLAN

“Emergency Management” (PLN-114) may be activated in response to events occurring at the project site, at the INL, or at the discretion of the emergency coordinator or emergency action manager. Once the INL plan is activated, project personnel will follow the direction and guidance communicated by the emergency coordinator.

NOTE: The OSHA HAZWOPER definition of an emergency is not defined the same as classified by DOE Orders 151.1B, “Comprehensive Emergency Management System,” and 231.1A, “Environment, Safety, and Health Reporting.” For this reason, the term “event” will be used in this section when referring to project HAZWOPER emergencies.

The requirements of MCP-2725, “Field Work,” for training, emergency actions, and notifications will be followed for all projects conducted outside facility boundaries. In accordance with MCP-2725, TAN environmental officers will ensure that personnel performing fieldwork are notified via radio or pager of emergency conditions and appropriate actions. The FTL or OS is required to be available and able to communicate with field workers at all times.

9.1 Emergency Preparation and Recognition

Project-specific HASP training will include proper site access and egress procedures in response to project events and INL emergencies. Visitors will receive this training on a graded approach based on their site access requirements. Visitor training will include alarm identification, location and use of

communication equipment, location of site emergency equipment, and evacuation. Emergency phone numbers and evacuation route maps are located in the NPTF and ISB Injection Facility. On-scene response to and mitigation of site emergencies could require the response from both project personnel and INL Fire Department personnel.

- Accidents resulting in injury
- Accidents resulting in radiological exposures
- Fires
- Explosions
- Spills of hazardous or radiological materials
- Tornadoes, earthquakes, or other adverse natural phenomena
- Vehicle or transportation emergencies
- Safeguard and security emergencies
- Emergencies at nearby facilities that could prompt evacuation or take-cover actions at the task site.



9.2 Emergency Alerting, Responses, and Sheltering

9.2.1 Alarms

Alarms and signals are used at the INL to notify personnel of abnormal conditions. Responses to these alarms are addressed in general employee training. Emergency sirens located throughout the INL serve as the primary means for signaling emergency TAKE COVER or EVACUATION protective actions.

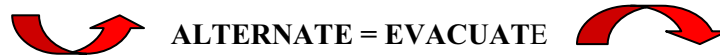
If the project site is outside the audible range of the facility alarms, then the notification to take cover or evacuate should be received on the field radio.

9.2.1.1 Take Cover—Continuous Siren. Radiation or hazardous material releases, adverse weather conditions, or other event or emergency conditions may require that all personnel take cover indoors in the nearest building. A TAKE COVER protective action may be initiated as part of a broader response to an emergency situation and may precede an evacuation order. The order to TAKE COVER is usually announced by activating the emergency siren. The signal to take cover is a CONTINUOUS SIREN.

 STEADY = STAY 

The take cover order also may be given by word of mouth, radio, or voice paging system. When ordered to TAKE COVER, project personnel will place the site and equipment in a safe configuration (if appropriate) and then seek shelter in the ISB Injection Facility, NPTF, or vehicle if working outside the TAN fence. Personnel are to remain in contact with the OS or FTL. Eating, drinking, and smoking are not permitted during take-cover conditions.

9.2.1.2 Total Area Evacuation—Alternating Siren. A total area evacuation is the complete withdrawal of personnel from the project site and the entire facility area. The evacuation signal is an ALTERNATING SIREN. When ordered to EVACUATE, project personnel will place equipment and the site in a safe configuration, as appropriate, and then proceed along the specified evacuation route (Figure 6) to the designated assembly area or as directed by the emergency coordinator.



For total area evacuations, the facility command post is activated and all personnel will gather at the primary facility evacuation assembly area (Figure 6) or the location designated by the emergency coordinator or FTL if the work crew is outside the facility. The OS or trained alternate will account for all personnel. In this situation, the project area warden will report the results of the accountability process to the facility emergency coordinator.

9.3 Personnel Roles, Lines of Authority, and Training

9.3.1 The Idaho National Laboratory Emergency Response Organization

The INL Emergency Response Organization's structures are based on the Incident Command System and are described in Plan (PLN) -114, "Emergency Management," and facility-specific addendums to that plan.

9.3.2 Roles of Project Personnel in Emergencies

Every person at the OU 1-07B project site has a role to play during a project event or INL emergency. Each employee must be aware of potential problems or unexpectedly hazardous situations and immediately report these situations to the FTL or OS. All personnel are expected to watch out for their fellow workers, to report their concerns to the FTL or OS, and to take emergency actions as described in this section. Roles and responsibilities are further detailed in Table 8.

9.4 Medical Emergencies and Decontamination

Medical emergencies and responses to injuries or suspected exposures will be handled as stated in Sections 9.5 and 9.6. Decontamination of personnel and equipment is described in Section 10.

9.5 Emergency Communications

In the event of a project emergency, notify the FTL or OS who will in turn notify the TAN shift supervisor (Table 10). The shift supervisor will then make the required Emergency Response Organization notification. The following information should be communicated, as available, to the shift supervisor:

NOTE: If the shift supervisor cannot be contacted, then call 526-1515 (the Warning Communication Center) with as much of the information below as possible. The Warning Communications Center must also be told that notification to the facility shift supervisor was not possible.

- The caller's name, title (e.g., OS or FTL), telephone number, and pager number
- Exact location of the emergency

- Nature of the emergency, including time of occurrence, current site conditions, and special hazards in the area
- Injuries (if any), including numbers of injured, types of injuries, and conditions of injured
- Emergency response resources required (e.g., fire, hazardous material, and ambulance)
- Additional information, as requested.

Table 8. Responsibilities during an emergency.

Responsible Person	Action Assigned
OS or FTL (or designee)	<ul style="list-style-type: none"> • Signal evacuation. • Report spill to the shift supervisor and take mitigative actions.^a • Report incipient fires to the INL Fire Department. • Contact the shift supervisor or Warning Communications Center (if the shift supervisor cannot be contacted). • Contact the project manager.
OS (or trained designee)	<ul style="list-style-type: none"> • Serve as the area warden and conduct accountability. • Report to the shift supervisor.
HSR and medic and first-aid-trained personnel	<ul style="list-style-type: none"> • Administer first aid to victims (voluntary basis only).
Project personnel	<ul style="list-style-type: none"> • Immediately place equipment or work areas in a safe configuration if safe to do so. • Evacuate the site in response to TAKE COVER or EVACUATION alarms. • Contact the OS or FTL for accountability. • Perform spill control if safe and report the spill immediately to the FTL or OS. • If the spill is not safe to mitigate, isolate or evacuate the area and notify the FTL or OS.

a. The shift supervisor or emergency coordinator will contact the Environmental Affairs spill response categorization and notification team.

FTL = field team leader
HSR = health and safety representative
INL = Idaho National Laboratory
OS = operations supervisor

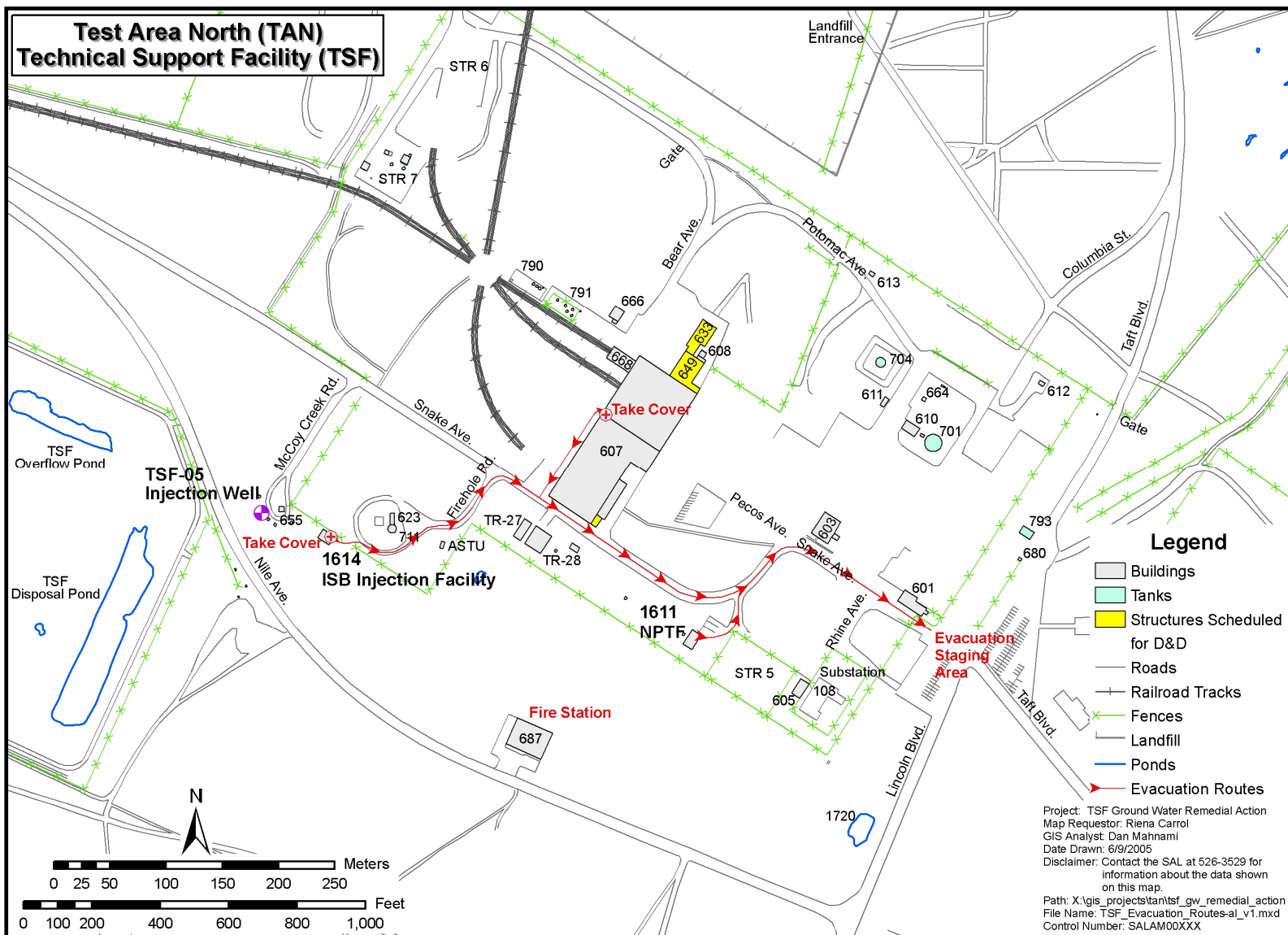


Figure 6. Location of the Idaho National Laboratory Test Area North fire station, site and facility evacuation routes, and evacuation pickup area.

9.6 Equipment

Table 9 lists the emergency response equipment maintained at the OU 1-07B project site. The TAN facility-specific addendum to PLN-114, “Emergency Management,” lists emergency equipment available at the TAN facility. The INL Fire Department personnel are trained to provide immediate hazardous material spills and medical services. In addition, medical personnel at the CFA-1612 medical facility (Figure 7) evaluate and stabilize injured personnel or those experiencing signs and symptoms of exposure. Copies of the evacuation assembly areas are posted in the NPTF and the ISB Injection Facility (Figure 6).

NOTE: If the work area is outside of a facility, then the INL evacuation routes listed in PLN-114, “Emergency Management,” will be used.

Table 9. Emergency equipment available at the Operable Unit 1-07B project site.

Equipment Name and Quantity Required	Location at Task Site	Responsible Person	Frequency of Inspection or Verification
First-aid kit	<ul style="list-style-type: none"> • Project vehicle • NPTF • ISB facility • ISB field lab 	OS	Monthly: check seal. If broken, follow appropriate procedure.
Eyewash bottles ^a Eyewash station ^a	<ul style="list-style-type: none"> • NPTF • ISB field lab 	OS	Monthly
Hazardous materials spill kit	<ul style="list-style-type: none"> • NPTF 	OS	Monthly
Communication equipment (during sampling or other operational events)	Onsite	OS	Radio check as needed
Fire extinguishers ^b	<ul style="list-style-type: none"> • Project vehicle • NPTF • ISB facility 	OS	Monthly

a. An eyewash bottle will be used to provide an immediate eye flush when needed. The OS and FTL will identify the location of the eyewash station during the prejob briefing. Eyewash stations shall be maintained and inspected in accordance with MCP 3807, “Placement, Inspecting, Testing, and Maintaining Emergency Eyewash and Shower Equipment.”

b. A minimum of one 10A/20BC fire extinguisher is required. If it is discharged, it will be returned for servicing and recharging.

FTL = field team leader

ISB = in situ bioremediation

MCP = management control procedure

NPTF = New Pump and Treat Facility

OS = operations supervisor

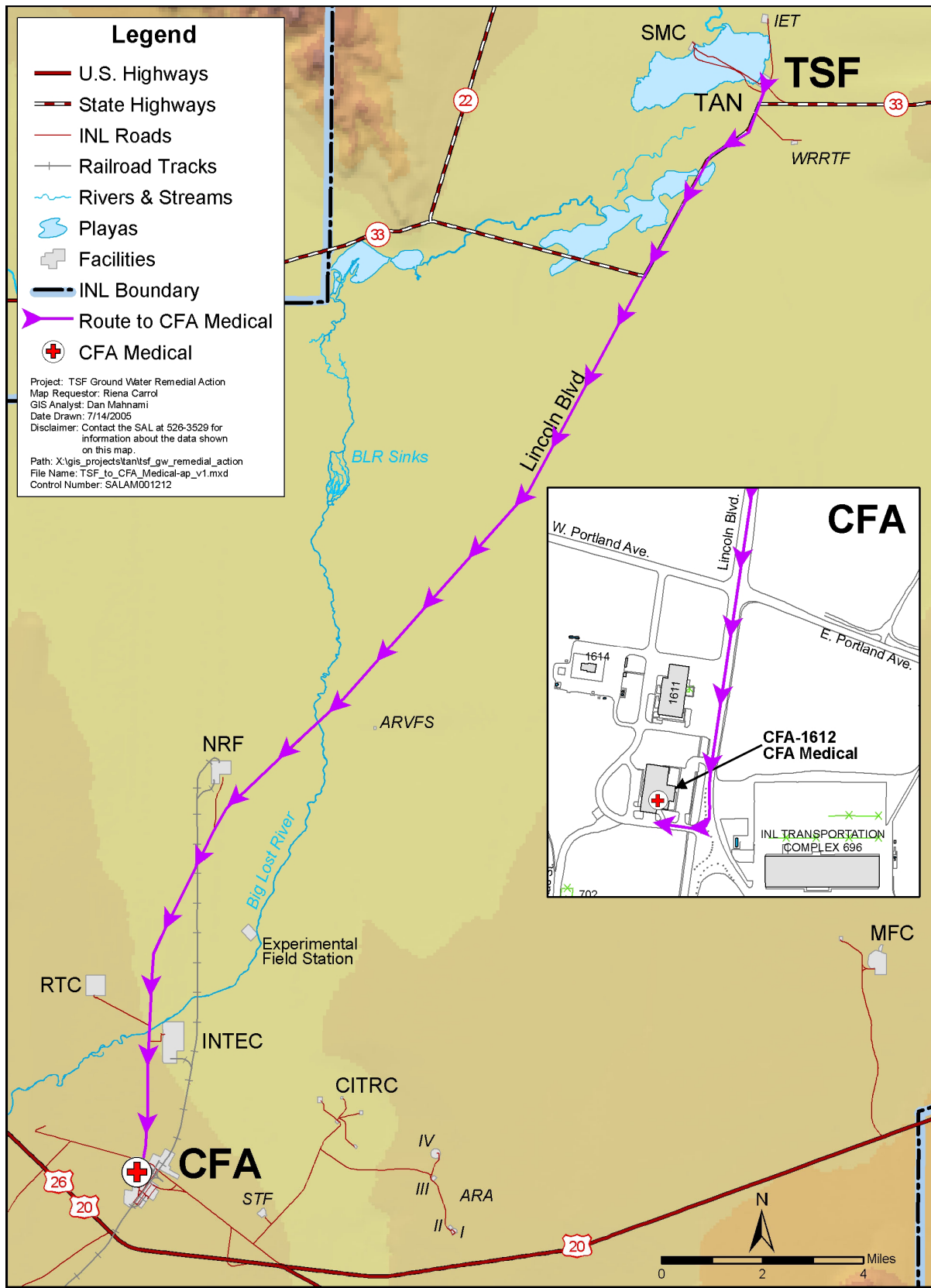


Figure 7. Route to Idaho Cleanup Project dispensary at the Central Facilities Area.

9.7 Reentry, Recovery, and Site Control

All reentry and recovery activities will follow general site security and control requirements identified in Section 8 unless conducted as part of an emergency response action. The on-scene commander will control all entries to the project site performed in support of emergency actions.

9.7.1 Reentry

During an emergency response, it is sometimes necessary to reenter the scene of the event. Reasons for performing a reentry may include:

- Performing personnel search and rescues
- Responding to medical first-aid needs
- Performing safe shutdown actions
- Performing mitigative actions
- Evaluating and preparing damage reports
- Performing radiation or hazardous material surveys.

Reentries will be carefully planned to ensure that personnel are protected from harm and to prevent initiating another emergency event.

9.8 Critique of Response and Follow-up

A review and critique will be conducted following all emergency events, drills, and exercises at the INL. In some cases, an investigation may be required before commencing recovery actions. For this reason, care should be exercised to preserve evidence.

9.9 Telephone and Radio Contact Reference List

Table 10 lists the points of contact for the OU 1-07B project. A copy of this list will be posted in the ISB Injection Facility and NPTF control room and will be available from the OS and FTL. Because personnel listed may change frequently, working copies of this list will be generated as required to note new positions and changes of assigned personnel. This HASP will not be revised with a DAR (Form 412.11) as a result of changes to the contact list.

10. DECONTAMINATION PROCEDURES

Every effort will be made to prevent contamination of personnel and equipment through the use of engineering controls, isolation of source materials, contaminant monitoring, personnel contamination control training, and by following material-handling requirements and procedures for contaminated or potentially contaminated materials. If contact with potentially contaminated surfaces cannot be avoided, then additional engineering controls in combination with PPE upgrades may be necessary to control the contact hazard.

Table 10. Operable Unit 1-07B Project emergency contact list.

Contact Title	Contact Name	Site Phone Number/ Radio Net	Pager Number
Warning Communications Center	—	777, 6-1515, “KID-240”	—
TAN emergency coordinator	—	6-6128 or 6-0377	—
TAN shift supervisor	—	6-9507	7414
ER project director	Lane Butler	6-9124 351-9260 (cell)	—
TAN facility manager	Al Millhouse	6-6932 360-0333 (cell)	5304
First aid—emergency	—	777	—
First aid—non-emergency (TAN shift desk)	—	6-3432	—
Occupational Medical Program	—	6-1596	—
Fire/security	—	777	—
OU 1-07B field team leader	Riena Carroll	6-2746 520-4917 (cell)	3551
OU 1-07B operations supervisor	Evan Myler	6-2230 520-6647 (cell)	4793
Long-Term Stewardship project manager	Michael Hodel	6-9684 520-6563 (cell)	6698
OU 1-07B project manager	Lee Nelson	6-3093 520-5076 (cell)	—
TAN radiological engineer	Rick Sorensen	6-9747	5801
TAN safety engineer	B. P. Shagula	6-0585 360-0314 (cell)	—
HSR	Larry McManamon	6-3658 521-8405 (cell)	
ER regulatory support	Scott Reno	6-5778 520-0271 (cell)	—
OU 1-07B DOE-ID project manager	Mark Shaw	6-6442	—
Site Paging System		6-4444 Dial pager number when asked.	
DOE-ID = U.S. Department of Energy Idaho Operations Office ER = environmental restoration HSR = health and safety representative OU = operable unit TAN = Test Area North			
NOTE 1: The OS or FTL are to be notified of any emergency. They will place appropriate calls and notify the project manager.			
NOTE 2: This table may be revised as personnel responsibilities change as a result of staffing changes. Changes will be posted at the task sites, but the HASP will not be revised except for major revisions.			
NOTE 3: Site phone numbers may be called using off-Site and cell facilities by dialing 526 instead of 6 and then the rest of the phone number.			

All personnel, clothing, equipment, and samples leaving an EZ (contaminated or potentially contaminated area) will be decontaminated to remove any harmful substances that might have adhered to them. All decontamination will be performed in accordance with the *Interim Decontamination Plan for Operable Unit 1-07B* (INEEL 2002). All PPE and decontamination materials contacting groundwater will be considered F001-listed hazardous waste and will be disposed of in accordance with MCP-3480, “Environmental Instructions for Facilities Processes, Materials, and Equipment,” and the *Waste Management Plan for Test Area North Final Groundwater Remediation Operable Unit 1-07B* (ICP 2005). Some equipment may be disposed of rather than decontaminated.

10.1 Contamination Control and Prevention

Contamination control and prevention procedures will be implemented to minimize personnel contact with contaminated surfaces. The following contamination control and prevention measures will be employed if contamination is encountered or anticipated:

- Identify potential contamination sources and design containment, isolation, and engineering controls to eliminate or mitigate any potential for contact or release of contaminants
- Limit the number of personnel, equipment, and materials that enter the contaminated area
- Implement immediate decontamination procedures to prevent the spread of contamination (if contamination is found on the outer surfaces of equipment)
- Use only the established control entry and exit point from the contaminated area to minimize the potential for cross-contamination and expedite contamination control surveys
- Wear disposable outer garments and use disposable equipment where possible
- Use hold points defined in procedures and work orders to monitor for contamination where anticipated.

10.2 Storage and Disposal of Contaminated Materials

All waste streams generated from the OU 1-07B project will be handled, stored, and disposed of in accordance with the *Waste Management Plan for Test Area North Final Groundwater Remediation Operable Unit 1-07B* (ICP 2005).

11. OCCUPATIONAL MEDICAL SURVEILLANCE

Routine activities at the TAN OU 1-07B work site do not require annual medical surveillance. However, U.S. Department of Energy (DOE) Order 414.1C, “Quality Assurance,” and 29 CFR 1910.120 and 29 CFR 1926.65 require the INL to provide an Occupational Medical Program (OMP) surveillance for INL employees who meet the following conditions:

- Personnel are, or may be, exposed to hazardous substances at or above the OSHA permissible exposure limit, or published exposure limits, without regard to respirator use for 30 or more days per year

- Employees are injured, become ill, or develop signs or symptoms because of possible overexposure involving hazardous substances or health hazards from an emergency response or hazardous waste operation
- Employees who must wear a respirator for 30 days or more a year or as required by “Respiratory Protection” (29 CFR 1910.134)
- Personnel who wear a respirator in performance of their job or who are required to take respirator training to perform their duties under this plan must participate in the medical evaluation program for respirator use at least annually, as required by MCP-2726 and PRD-2109, “Respiratory Protection.”

Should conditions change and project personnel need to participate in the OMP, the following conditions will be met:

- A copy of the project HASP, job hazard analysis requirements, required PPE, confined space entry requirements (as applicable), and other exposure-related information will be made available upon request to the OMP physician or subcontractor physician.
- Exposure-monitoring results and hazard information furnished to the OMP physician will be supplemented or updated annually as long as the employee is required to maintain a hazardous waste and materials employee medical clearance.
- The OMP physician will evaluate the physical ability of an employee to perform the assigned work and a documented medical clearance (e.g., a physician’s written opinion) will be provided to the employee and line management stating whether the employee has any detected medical condition that would place him or her at increased risk of health impairment from working in hazardous waste operations, emergency response operations, respirator use areas, and confined space areas (as applicable).
- The physician may impose restrictions on the employee by limiting the amount and type of work performed.
- Employees are responsible for communicating any work or medical restrictions to their supervisor so modified work assignments can be made if necessary.

11.1 Injuries on the Site

It is the INL’s policy that an INL OMP physician must examine all injured personnel for the following reasons:

- An employee is injured on the job
- An employee is experiencing signs and symptoms consistent with exposure to a hazardous material
- An employee is believed to have been exposed to toxic substances or physical or radiological agents in excess of allowable limits during the course of a project at the INL.

NOTE: In the event of an illness or injury, the decision to provide first aid and transport to the nearest medical facility or whether to immediately request an ambulance and continue to stabilize and provide first aid should be based on the nature of the injury or illness and likelihood that transporting the individual could cause further injury or harm. Most likely, the person making this decision will be trained to the medic first-aid/cardiopulmonary resuscitation (CPR) level and should contact the Central Facilities Area (CFA) medical facility at 777 or 526-1515 for further guidance if there is any question as to the extent of injury or potential to cause further harm by moving the injured individual.

In the event of a known or suspected injury or illness caused by exposure to a hazardous substance or physical or radiological agent, the employee will be transported to the nearest INL medical facility for evaluation and treatment (as necessary). The OS and FTL are responsible for obtaining as much of the following information as is available to accompany the individual to the medical facility:

- Name, job title, work (site) location, and supervisor's name and phone number
- Substance, physical or radiological agent exposed to (known or suspected), and material safety data sheet (if available)
- Nature of the incident and injury or exposure and associated signs or symptoms of exposure
- First aid or other measures taken
- Locations, dates, and results of any relevant personal or area exposure monitoring or sampling
- List of PPE worn during this work (e.g., type of respirator and cartridge used).

Further medical evaluation will be determined by the treating or examining physician in accordance with the signs and symptoms observed, hazard involved, exposure level, and specific medical surveillance requirements established by the OMP director in compliance with 29 CFR 1910.120 and 29 CFR 1926.65.

NOTE: In the event of an illness or injury, subcontractor employees will be taken to the closest INL medical facility (if doing so will not cause further injury or harm) or be transported by INL ambulance to have an injury stabilized before transport to the subcontractor's treating physician or off-Site medical facility.

The TAN shift supervisor and OU 1-07B project manager will be contacted if any injury or illness occurs at a project site. As soon as possible after an injured employee has been transported to the INL medical facility, the OS or FTL will make notifications, as indicated in Section 10.

11.2 Substance-Specific Medical Surveillance

No contaminants (listed in 29 CFR 1910, Subpart Z) with substance-specific standards have been identified at the TAN OU 1-07B project site. If new contaminants of concern are identified during the course of project tasks, exposures will be evaluated and quantified to determine if occupational medical surveillance requirements apply. Should action levels be triggered, then affected personnel will be enrolled in applicable medical surveillance programs.

12. RECORDKEEPING REQUIREMENTS

12.1 Industrial Hygiene and Radiological Monitoring Records

When Industrial Hygiene support is required, the IH will record both area and personal airborne monitoring and sampling data on the INL Hazards Assessment and Sampling System database. All Industrial Hygiene monitoring and sampling equipment will be maintained and calibrated in accordance with INL procedures and the manufacturer's specifications. Industrial Hygiene airborne monitoring and sampling exposure assessment data are treated as limited access information and are maintained by the IH in accordance with INL safety and health manual procedures. Any airborne monitoring or sampling done by non-IH or non-safety personnel will be documented in a project-controlled logbook and will be reviewed by the IH.

The RCT maintains a daily logbook of radiological monitoring, daily project operational activities, and instrument calibrations. Daily response checks of radiological instrumentation are completed and recorded in accordance with applicable MCPs or TPRs. Radiological monitoring records are maintained in accordance with *Manual 15B–Radiation Protection Procedures*.

Project personnel, or their representative, have a right to both Industrial Hygiene and RCT monitoring and sampling area and personal data.

12.2 Site Attendance Record

The OS is responsible for maintaining a site attendance logbook to record all personnel, both field team members and non-field-team members, who enter the OU 1-07B site. Personnel are required to sign in and out on the attendance record once each day. This record will be used to assist the area warden when conducting personnel accountability in the event of an evacuation. The completed logbooks are to be returned to the ICP Sample and Analysis Management Program for submission to ER Document Control.

12.3 Field Team Leader and Sampling Logbooks

The OS and FTL are to maintain a complete record of daily site events in their respective logbooks in accordance with MCP-1194, "Logbook Practices for ER and D&D&D Projects." Logbooks are to be obtained from the ICP Sample and Analysis Management Program and returned to them within 6 weeks of project completion for submission to ER Document Control.

12.4 Idaho Cleanup Project Document Control

The ICP Document Records Service Center provides a documented system for the control and release of controlled documents, reports, and records. Copies of the project plans for ER; this HASP; PLN-694; the *Quality Assurance Project Plan for Waste Area Groups 1, 2, 3, 4, 5, 6, 7, 10, and Deactivation, Decontamination, and Decommissioning* (DOE-ID 2004); and other project-specific documents are maintained in the project file by the Document Records Service Center. Completed sample logbooks are submitted to the Sample and Analysis Management Program within 6 weeks of project completion. All other project records and logbooks, with the exception of Industrial Hygiene logbooks, must be forwarded to the Document Records Service Center within 30 days after completion of field activities.

13. REFERENCES

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